THE

Medical and Physical Journal.

VOL. VI.] NOVEMBER, 1801. [NO. XXXIII.

To Dr. BATTY.

DEAR SIR,

IN the month of October, 1797, I submitted to the public a method of treating fever by the affusion of water on the surface of the body,* which has been repeatedly noticed in your Journal; and several enquiries having been addressed to me respecting my subsequent experience of the same remedy, I beg leave to give my answer through the medium of your publication, which seems to attract the general attention of the medical world.

Into the particulars of the practice detailed in that work it is unnecessary to enter. Four years of my farther experience serve only to confirm that practice, which is now supported by the experience of a considerable number of respectable practitioners, not in this island only but in other parts of the world, of which it is my design to lay some account before the public. As, however, it is uncertain when this design may be carried into effect, I submit in the mean time the following narrative to your readers, in the hope that it may encourage others to follow the practice it so powefrully recommends, and with a respectful request that they may communicate the result of their deliberate experience.

Soon after the Cheshire regiment of militia, which is now quartered in Liverpool, marched into the town, their commanding officer, Major Buckworth, with the liberal spirit of his profession, called upon me to mention the extraordinary success of the affusion of cold water in an epidemic fever which had prevailed in the regiment, and to introduce to me the surgeon, Mr. Marshall, from whom I received the following particulars:

* See Medical Reports on the Effects of Water, cold and warm, as a Remedy in Fever and other Diseases, whether applied to the Surface of the Body, or used internally, &c. By James Currie, M. D. F. R. S. Published by Cadell and Davies. Second edition, 1798.

To Dr. CURRIE.

Sir, *Liverpool, July 20, 1801.*

" In the month of May, 1800, the Cheſhire regiment were in barracks at Goſport, when the typhus fever made its appearance among them. It was probably communicated to them while on duty over the French priſoners, among whom it prevailed. The firſt ſymptoms were a dull head-ach, with reſtleſſneſs and ſhivering, pains in the back and all over the body, the tongue, foul with great proſtration of ſtrength. The head-ach became gradually more acute, the heat roſe to 102° and 104°, and in one inſtance to 107°; and in general the reſtleſſneſs increaſed to delirium, particularly in the night. The fever ſpread with rapidity. At firſt we employed the uſual remedies; emetics in the firſt inſtance, antimonials for a day or two afterwards, to keep the ſkin ſoft, then wine, in proportion to the debility, from a pint to a quart and upwards, daily, with nutritious diet, and an opiate conſiſting of 40 or 50 drops of the tincture of opium every night. The bowels were kept open with calomel and rhubarb, and barley water and lemonade were drank at pleaſure. In four caſes I gave three bottles of wine a day. Theſe ſeemed deſperate, but all of them finally recovered. Port wine ſeemed ſcarcely to ſtimulate in theſe inſtances at all; I changed it for Sherry, and this I ſometimes mixed with brandy. In a ſingle month the wine coſt me ten pounds four ſhillings, though I had a great part of it from the meſs, where it was laid in in quantity, and on the loweſt terms. I uſed few bliſters and no bark. This laſt medicine I had given before, in a number of ſimilar caſes, at Wincheſter, without any benefit. Where there was delirium, which was pretty general, the head was ſhaved. This practice I continued for two months; during that time thirty of the men were ſeized with the infection, and in few or no inſtances was the diſeaſe ſtopped by the emetics or antimonial ſudorifics. The fever ran from thirteen to ſeventeen days, and in ſome caſes to three and four weeks. We loſt during the fever one man only, but ſeveral from the effects combining with other cauſes, particularly pulmonic conſumption.

" The contagion continued to ſpread in ſpite of all our endeavours. At length we had twenty-five in the hoſpital together, in the different ſtages of the diſeaſe.

" Finding none of the uſual means ſucceſsful in arreſting the fever, I had recourſe to the affuſion of cold water; this was towards the end of July. The firſt caſe in which I tried it was that of a battalion man, in the ſecond day of the diſeaſe. I ſtripped him naked and threw four or five gallons of ſea water

ter over him, dried him, and put him to bed. He felt very comfortable, became drowſy, and ſlept for two hours; when he awoke his ſkin was cool and moiſt, the pulſe nearly natural, and the head-ach in a great meaſure gone. In the evening the fever returned; I threw the water again over him with the ſame happy effect. He had a good night's reſt; next morning he was free of fever, and he was diſmiſſed cured on the third day from his admiſſion.

"Pleaſed with this ſucceſs, I immediately adopted the ſame practice in nine other caſes of fever, from the firſt to the fifth day of the diſeaſe, with equal benefit. In ſix other caſes, from the ſixth to the tenth of the diſeaſe, I followed the ſame practice; in three of theſe with complete and nearly immediate ſucceſs, having uſed affuſion only thrice with each. From the debility however which had been induced by the longer continuance of the diſeaſe, they were not ſo immediately fit to be diſcharged from the hoſpital. In the three other caſes ſenſible relief was obtained, and they all recovered in the end, but the diſeaſe ran its courſe. Encouraged by the ſucceſs and ſafety of the practice, in one inſtance I went ſo far as to try the cold affuſion on the ſixteenth day of fever. At the moment, the patient ſeemed almoſt inſenſible to the ſhock. When he was replaced in bed, his extremities and his ſurface were cold; the pulſe became fluttering, and ſcarcely perceptible. We uſed frictions, and poured warm wine into him in ſmall quantities at a time, which he ſwallowed with great difficulty. He recovered his power of deglutition, and we increaſed the wine gradually to three bottles a day. He recovered in the end, but was upwards of three months in the hoſpital.

"In a few weeks, the old caſes that were on hand when I began the uſe of the cold affuſion were diſcharged, but the contagion, from the nature of the duty, continued to ſpread in the regiment, and many caſes of fever occurred in the months of Auguſt and September. Theſe were watched narrowly, the cold affuſion invariably uſed, and in general on the ſecond day. The effects were ſimilar to thoſe related of the caſe firſt mentioned; the ſucceſs was invariable. One of theſe caſes, that of Holding, of the grenadiers, was remarkable: He was taken into the hoſpital the 20th of September, late in the evening, of the ſecond day of fever, with the uſual ſymptoms, but in the ſevereſt form. An emetic was adminiſtered, and the affuſion deferred till morning. The emetic operated well, but his night was extremely reſtleſs, his head-ach particularly acute, and delirium came on with great violence. It was neceſſary to employ force to keep him in bed. In the morning of the 21ſt, (the third day of fever) I found his heat had ariſen to the un-

common height of 107°, and his pulse was 125. The cold affusion was employed; he screamed from the severity of the shock; but, on returning into bed, he appeared much refreshed, was perfectly sensible, and said that he thought himself well. On examining about ten minutes after the affusion, the heat was found to be 100°, the skin moist, the pulse 110. He slept for nearly four hours in perfect tranquillity. In the evening the fever returned. The affusion was repeated again with similar benefit. He slept the greater part of the night. Next morning the fever returned once more. The remedy was once more applied, and the disease was subdued. He was dismissed from the hospital on the 29th.

"By this time the hospital was thin from the rapid discharge of the patients, but the contagion still continued to spread in the regiment. The cold affusion was invariably applied, and, in general, on the second day of fever, as has already been mentioned. At length the contagion was extinguished; when we left Gosport, in the month of November, not a single case of fever was left behind. From the end of July to the 31st of October, I employed the cold affusion in sixty-four cases. In sixty of these I arrested the disease, having seldom occasion to use the remedy more than twice or thrice, and in no one case more than four times. In the other four cases, (all of which are alluded to in the course of this narrative) the disease being advanced, was not stopped by the remedy, though the patients ultimately recovered.

"From the time I began the use of the cold affusion, I used little or no wine, no opium, nor, indeed, almost any other remedy, in any one case in which the cold affusion was employed.

"A great part of these facts was witnessed by Dr. Franklin, physician to the district; nearly the whole of them by my fellow-surgeons, Mr. Varenne and Mr. Worthington; and the general truth of this representation will be confirmed by my friends, the officers of the Cheshire, particularly by Major Buckworth, who frequently visited the hospital. I have the pleasure of adding, that any evening on parade, I can point out the individuals whose cases I have mentioned.

I have the honour to be, your very obedient servant,

James Marshall, Surgeon, Royal Cheshire Militia."

Any comment that I could make on this narrative would only weaken its effects. Experiments such as these, so clear and simple, on so large a scale, and performed before so many witnesses, cannot, it should seem, be invalidated. They correspond entirely with my daily experience, which in this respect

respect possesses an uniformity which I should look for in vain in almost any other branch of medical practice. The reader will have the goodness to notice, that Mr. Marshall's practice was in exact conformity with the directions in the "Medical Reports." It was the low contagious fever that his patients laboured under; it was in the early stage of the disease that he employed the remedy, and generally in the state of the greatest heat and exacerbation; lastly, it was affusion, not immersion, that he employed.

In fevers arising from, or accompanied by, topical inflammation, my experience does not justify the use of the cold affusion; though in a great variety of these cases, the warm affusion may be used with advantage. And though I have used the cold affusion in some instances so late as the twelfth and even fourteenth day of contagious fever, with safety and success, yet it can only be employed, at this advanced period, in the instances in which the heat keeps up steadily above the natural standard, and the respiration continues free. In such cases I have seen it appease agitation and restlessness, dissipate delirium, and, as it were, snatch the patient from impending dissolution. But it is in the early stages of fever (let me again repeat) that it ought always to be employed, if possible; and where, without any regard to the heat of the patient, it is had recourse to in the last stage of fever, after every other remedy has failed, and the case appears desperate, (of which I have heard several instances) can it appear surprising that the issue should sometimes be unfavourable?"

Some of my correspondents complain of the difficulty of persuading their patients to submit to the cold affusion. This difficulty will soon disappear, if, before the remedy is proposed, the practitioner shall have first decided in his own mind on its propriety; and in recommending it, shall exhibit that calmness and confidence with which every remedy, and especially a new and an apparently bold one, should be proposed to a patient whose mind is weakened by disease. Let me add, that every arrangement should be made for the affusion before the patient is moved at all, and that fatigue, as well as disquiet, should be particularly avoided. And, after all, the tepid affusion may be substituted for the more powerful remedy, in cases where the delicacy of the system, or the apprehensions of the patient, or of the bye-standers, prevent the other from being employed.

Since the publication of the "Medical Reports," the cold and tepid affusion have been applied to some other diseases, and particularly to the cynanche maligna and scarlatina anginosa, with the happiest effects. Of this I propose to give some account in a subsequent Number of your Journal. It is to be lamented,

lamented, that in the habitations of the poor there is ſeldom an opportunity of uſing theſe remedies ſufficiently early, or with the accommodations which are ſo deſirable towards enſuring comfort, ſafety, and ſucceſs. Liverpool, with its uſual public ſpirit, is erecting an extenſive Hoſpital for the reception of Fever and other contagious diſeaſes, which will, in ſome meaſure, remedy this and many other evils. The typhus and ſcarlet fever have of late been unuſually prevalent in Liverpool, and to theſe have been added a bowel complaint, aſſuming very generally the form of dyſentery. This has been in a very uncommon degree general and ſevere; but the report that the yellow fever has made its appearance among us is entirely without foundation. Of theſe epidemics ſome authentic particulars may in due ſeaſon be expected by the public. I have the honour to be, DEAR SIR,

Your obedient ſervant,

Liverpool, Oct. 10, 1801. J. CURRIE.

TO DR. BRADLEY.

DEAR SIR,

IT gives me great pleaſure to find from your Note at p. 219, that "ingenious artiſts are now at work, in the hope of being able to give accurate repreſentations of the true and ſpurious" Cow-pox, or, as I have propoſed to name them, the *Vacciola scutellata* and *leprosa*, as nothing within my ſphere of obſervation has tended to retard the progreſs of the new inoculation ſo much as the difficulty which inexperienced inoculators find in learning to diſtinguiſh the two diſeaſes which unhappily the vacciolous virus is capable of producing. Theſe artiſts will, I hope, colour their plates by hand, as the botanical artiſts do; for if they do not, I am fearful they will not afford much inſtruction to the young Cow-pox inoculator. The medical and the unprofeſſional practitioner ſeem here on a level, for out of eight inoculators who omitted to re-inoculate patients who had had the Vacciola leproſa, four were regular ſurgeons, and a fifth a medical practitioner who had been in the habit of inoculating with Variolous virus. Of their eleven patients, nine took the Small-pox, two died of the Small-pox, and from one of them the Vacciola leproſa was communicated by inoculation to another patient. This laſt was re-inoculated, and was infected with Vacciola ſcutellata; but the patient from whom the virus

virus of the Vacciola leprosa was taken, owing to the prejudices of its parents, now lives exposed to the danger of being carried off by the natural Small-pox.

I remain, &c.

Chesterfield, 3 Oct. 1801. JONATHAN STOKES.

To the Editors of the Medical and Physical Journal.

GENTLEMEN,

IF you think the following case worthy a place in the Medical and Physical Journal, it is at your service. I am, &c.

Bath, Oct. 10, 1801. W. WHITE.

SEPT. 12. Eliz. Hall, ætat. 23, was seized five weeks ago with a chilliness, pain of her bowels and head. Three or four days after a nausea and vomiting came on, (of a yellow colour and bitter taste) accompanied with a diarrhœa. She was thirsty, skin hot, pulse quick, tongue white, had sweatings at night. Some calomel, and a saline cordial mixture, were prescribed for her; and, in the course of a fortnight, she appeared mending for three or four days. The sickness and vomiting however returned again, with stitches in different parts of the chest, and considerable oppression at the præcordia, greatly interrupting respiration. Notwithstanding every attention was paid to her, the complaint increased, and she was now so extremely reduced, that persons around her frequently thought she was expiring. Nothing had stayed on her stomach for several days, either of food or medicine. The vomiting was æruginous; she had singultus often; frequent loose motions, of a dark colour; pulse very feeble and quick; tongue florid, smooth, and shining; she was perfectly sensible.

In this deplorable situation, I directed her stomach and bowels to be fomented with a decoction of camomile flowers, and afterwards a liniment formed of ℥ss tinct. opii and a yolk of an egg, one half of which was rubbed on the abdomen* at two o'clock, p. m. and the remainder at bed-time. What is very remarkable, she never was sick, nor vomited after the first friction,

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* The liniment could not be applied immediately to the region of the stomach, as she had a blister on three or four days before, which was not quite healed.

tion, but fell aſleep immediately on the application of the opium, and ſlept for ſome time. The fomentation and friction were continued a few days, gradually decreaſing the quantity of opium; and as her ſtomach could bear it, a little wine was frequently given. It may be obſerved, that not only the vomiting ceaſed, but the diarrhœa alſo; and ſhe had no complaint afterwards, except a ſlight pain of her legs. Her pulſe was reduced to 96 on the third day, which before was exceedingly quick.

She is recovering her ſtrength very faſt.

List of Diseases at the Bath City Diſpensary, from September 1, to October 1, 1801.

Angina	1	Pulmonary Complaints	2
Aſthma	1	Paralyſis	3
Anaſarca	3	Pſora	1
Aſthenia	1	Prolapſus Ani	1
Bowel Complaints	5	Rheumatiſm	10
Contuſion	2	Scarlatina	1
Cholera	1	Synochus Bilioſa	36
Chloroſis	3	——— Pleuritica	4
Eruptiones	2	——— Gaſtritica	1
Fever (ſimple)	9	——— Cholerica	1
Gaſtrodynia	4	——— Dyſenterica	3
Hernia	3	——— Icterica	1
Hæmorrhagia	2	——— Anaſarca	1
Hæmorrhoids	1	Suppuration	2
Herpes	1	Syphilis	3
Icteris	1	Strain	1
Inflammation	1	Scrofula	2
Lepra	2	Strictures in Urethra	1
Menorrhagia	3	Typhus	1
Nephritic Complaints	1	Tuſſis	1
Ophthalmia	1	Tumor	1
Pertuſſis	3	Tinea Capitis	2
Phthiſis	7	Ulcerated Legs	7

To the Editors of the Medical and Phyſical Journal.

Gentlemen,

THE ſtate of the patients admitted on the Briſtol Diſpenſary, from the 1ſt of September to the 1ſt of October, 1801, is as follows:

Anasarca	3	Fits	1
Amenorrhœa	1	Impostume	1
Asthenia	2	Nervous	1
Asthma	1	Pleuritis	2
Abscess in the Axilla	1	Phthisis	1
Contusion	1	Peripneumonia	2
Consumption	1	Rheumatismus Acutus	3
Diarrhœa	14	Rheumatismus Chronicus	6
Dysenteria	22	Synocha	8
Diseased Breast	1	Scrophula	1
Erysipelas	2	Typhus Fever	39

Dispensary House, Oct. 9, 1801.

Account of Diseases in an Eastern District of London, from the 20th of September to the 20th of October, 1801.

ACUTE DISEASES.		Menorrhagia	5
Typhus	22	Leucorrhœa	4
Pneumonia	2	Hypochondriasis	1
Dysenteria	15	Vertigo	3
Rheumatismus Acutus	2	Paralysis	1
CHRONIC DISEASES.		Vomitus	4
Peripneumonia Notha	4	Prolapsus Vaginæ	1
Phthisis Pulmonalis	2	Herpes	5
Tussis	10	Rheumatismus Chronicus	15
Tussis et Dyspnœa	7	PUERPERAL DISEASES.	
Pleurodyne	3	Low Puerperal Fever	3
Hepatitis Chronica	1	Menorrhagia Lochialis	1
Hydrothorax	2	Mastodynia	3
Anasarca	3	Dysuria	1
Ascites	1	INFANTILE DISEASES.	
Diarrhœa	10	Febris Mesenterica	1
Hæmorrhois	4	Herpes	4
Tenesmus	6	Tinea Capitis	2
Amenorrhœa	3	Diarrhœa	12

The fever which has long prevailed, and the influence of which has been so extensively diffused, still continues. The symptoms attending it are very similar to those which have lately been described.

Those violent affections of the brain, which have formed so important a characteristic of the disease for a considerable time, are less frequent; and at present, disease of the stomach and bowels seems to be a more common attendant upon this fever. This occurs under various forms, and in different degrees. A moderate diarrhœa occurring at an early stage of the disease, has

has generally proved ſalutary, and has frequently afforded a juſt prognoſis of a favourable termination of the diſeaſe: But when at a more advanced period, evacuations from the bowels have increaſed, have aſſumed a dark appearance, and have exhaled a fœtid odour, they muſt be viewed as ſymptomatic of diſeaſe and danger, rather than as affording the hope of any critical relief. It by no means, however, follows from hence, that ſuch evacuations are to be checked, whilſt the preſence of this offenſive matter is an indication of diſeaſe; the removal of it may prove the means of relief; and therefore to correct and diſcharge what is ſo offenſive to the inteſtine and to the conſtitution, is ſurely a more rational practice than to detain it.

Beſide theſe affections of the bowels, which may be conſidered as ſymptomatic, there have been others which have conſtituted the original diſeaſe: A large number of dyſenteries have lately occurred, and ſome of them have proved very obſtinate.

This diſeaſe, as it is well known, uſually occurs at this ſeaſon of the year; and as a diarrhœa frequently prevails at the ſame time, owing probably, in ſome inſtances, to a larger quantity of fruit being eaten, theſe diſeaſes are too often confounded. The patient complains of pain in his bowels, accompanied with a large number of ſtools; and before any medical aſſiſtance is requeſted, every domeſtic medicine calculated to ſtop a purging is adminiſtered: But when the quantity and kind of diſcharge from the inteſtines are examined, it proves, that although the inclination to have a ſtool has been very frequent, yet the diſcharge has been very ſmall, and this conſiſting rather of mucus, or mucus-blood, than of fæces. A conſiderable degree of fever uſually accompanies this diſeaſe; and the frequent inclination to go to ſtool, and the teneſmus which ſucceeds it, are a ſource of conſtant uneaſineſs. This diſeaſe is to be traced to a ſpaſmodic ſtricture in the courſe of the large inteſtines, by which fæces are detained, and, conſequently, the cure muſt be attempted by relaxing the ſpaſm, and evacuating the fæces. Opium may be adminiſtered as an antiſpaſmodic, but its exhibition ſhould be immediately ſucceeded by that of a briſk cathartic. In the treatment of moſt of the caſes referred to in the liſt, Pulv. ipec. camp. from 10 to 15 grains, was preferred to any other opiate, and cryſt. tart. from 2 to 4 drachms, with 6 or 8 grains of ſcammony, generally anſwered the purpoſe of diſcharging a conſiderable quantity of fæces, which was followed by an abatement of the moſt urgent ſymptoms.

Diseases admitted under the Care of the Physicians of the Westminster Hospital, from August 24 to October 26, 1801.

Continued Fever - - - -	28	Impetigo - - - - - -	7
Intermittents - - - - -	3	Lepra - - - - - - - -	1
Pleuritis - - - - - -	7	Leucophlegmasia - - - -	1
Cynanche - - - - - -	4	Leucorrhœa - - - - -	4
Amenorrhœa - - - - -	8	Lumbago - - - - - -	1
Anasarca - - - - - -	7	Menorrhagia - - - - -	2
Anorexia - - - - - -	2	Obstipatio - - - - - -	7
Ascites - - - - - - -	1	Palpitatio - - - - - -	1
Asthenia - - - - - -	13	Paralysis - - - - - -	3
Asthma - - - - - - -	1	Pertussis - - - - - - -	4
Cephalæa - - - - - -	4	Phthisis - - - - - - -	2
Cholera - - - - - - -	5	Pleurodyne - - - - - -	5
Diarrhœa - - - - - -	13	Prolapsus - - - - - -	3
Dysenteria - - - - - -	1	Pyrosis - - - - - - -	1
Dyspepsia - - - - - -	9	Rheumatism - - - - -	21
Dyspnœa - - - - - -	4	Scabies - - - - - - -	1
Dysuria - - - - - - -	3	Sciatica - - - - - - -	3
Enterodynia - - - - -	6	Schirrhus - - - - - -	2
Epilepsia - - - - - -	1	Struma - - - - - - -	1
Gastrodynia - - - - - -	6	Tinea - - - - - - - -	1
Gonorrhœa - - - - - -	1	Tremor - - - - - - - -	1
Hæmatemesis - - - - -	1	Tussis - - - - - - - -	10
Hæmoptoe - - - - - -	2	Worms - - - - - - - -	3
Hysteria - - - - - -	2	Vertigo - - - - - - -	2
Icterus - - - - - - -	3		

To the Editors of the Medical and Physical Journal.

GENTLEMEN,

THE following case, which lately occurred at the Infirmary in this place, being, as I conceive, highly interesting to the pathologist, as well as useful to the practitioner in surgery, I make no apology for communicating it to the public through the medium of your Journal. I am, &c.

Leicester, Sept. 16, 1801. THO. PAGET.

MARGARET PEAT, aged 47, was admitted into the Infirmary on account of a large substance protruding from the pudenda, and which was supposed to be a prolapsus uteri. She had been married several years, but had never been pregnant

The disease had continued nearly in the same state, but increasing in magnitude for eight or nine years, previous to which she had, for a considerable time, experienced a sensation of *bearing down*, but nothing had appeared externally. At the time she was admitted, the tumour was as large as a new-born infant's head, very sore to the touch, and inflamed on the surface, especially on that part of it which was situated under the meatus urinarius, where it was much excoriated by the urine; it felt very heavy, and communicated a sensation on being handled, as if there was a small quantity of a fluid between the external covering and a harder substance, which appeared to form the bulk of the tumour within. The upper part of it extended from the meatus urinarius quite to the extremity of the rectum, which was pressed forcibly by it against the os coccygis; towards the lower part it became gradually of smaller diameter, and near the extremity was a substance apparently distinct from the main body, and which was nearly insensible, terminating in an opening at the apex, which was evidently the os tincæ, and from which she had regularly menstruated until the last eight or nine months of her existence. The longest diameter of the tumour was about eight inches, and it was incapable of being returned in any degree within the pelvis. It is remarkable, that notwithstanding this formidable disease had continued such a length of time, she had never consulted any medical practitioner on her case, and, until a few months previous to her admission, had performed her household business as usual, and even went out to harvest work the summer before. At the time she came to the Infirmary she suffered extreme pain, which came on at intervals similar to the pains of labour; and was generally attended with a troublesome prolapsus ani, by which her distress was greatly augmented. Her urine, which was highly purulent, was only evacuated during the pains, and that in small quantity. On attempting to introduce a catheter, with a view of relieving the suppression of urine, and of ascertaining whether the bladder had any share in the disease, I found an obstruction to its entrance; the meatus, though wide at the external orifice, took a sudden turn, which rendered all efforts to pass even the smallest catheters or bougies ineffectual, and the pain was greatly aggravated by every attempt of that kind. Various medicines and applications of the palliative kind were made use of with little effect, and, after four or five weeks, death put an end to her sufferings.

On examination of the parts after death, the phenomena attending the disease became very easy of solution. The inferior extremity of the tumour terminating in the os tincæ, evidently shewed that the uterus formed at least a part of its bulk; and, accordingly,

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EXTRAORDINARY CASE OF CALCULUS,

communicated by Mr. Paget of Leicester.

Fig. 1.

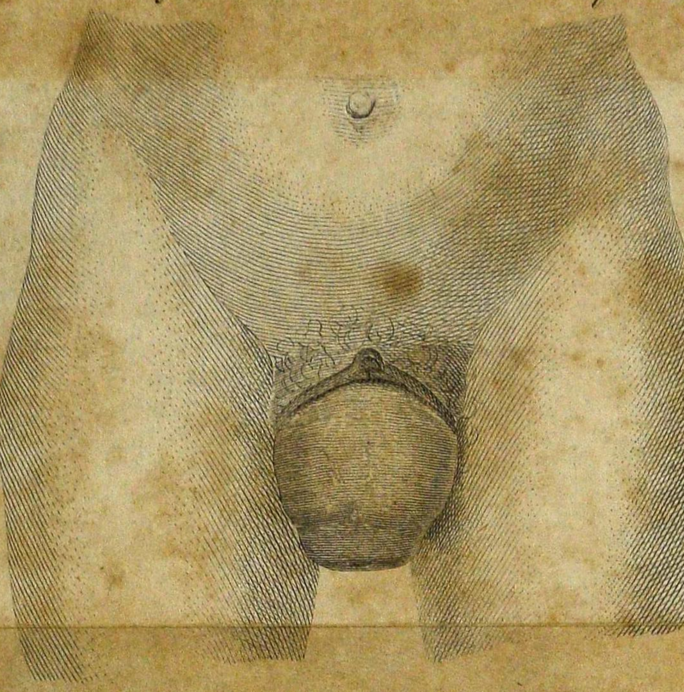


Fig. 2.

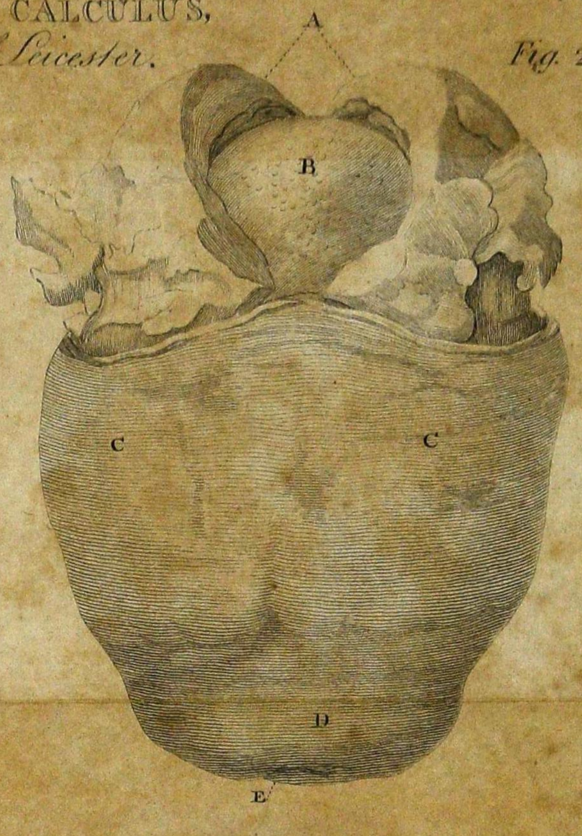
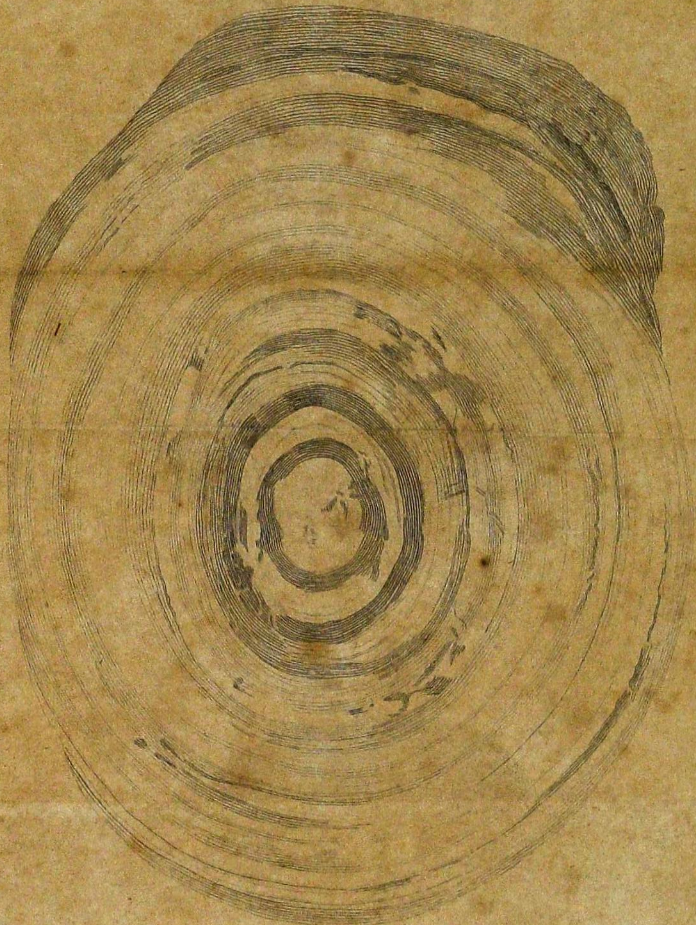


Fig. 3.

Fig. 4.



Printed for R. Phillips, No. 71 St. Pauls Church Yard.

accordingly, that viscus was found of its natural size, and perfectly free from disease, forming the lower insensible part of the protruded body. The upper portion was composed of the urinary bladder reflected backwards, and the whole was covered with the vagina inverted. The bladder was much diseased, and in some parts increased to nearly an inch in thickness, the inner surface being covered with purulent matter, which was also contained in great abundance within the rugæ. The bladder was found to contain one enormous calculus, besides innumerable smaller ones, some as large as peas, and others smaller. The large stone was of a light ash colour, rough on its surface, of a flattened oval shape, and when first taken out weighed *twenty-seven ounces*.* On its external surface was a sulcus, occasioned by the pressure of the distended labia pudendi; and the internal distribution of the laminæ shews that the upper part of the stone was formed after the bladder was rendered incapable of farther lateral distension.

EXPLANATION of the FIGURES.

Fig. 1. The appearance of the protruded part in the living subject.
2. The parts as they appeared on dissection.
A. The diseased and thickened substance of the bladder.
B. The calculus in situ.
C C. The inverted vagina.
D. The body of the uterus invested with the inverted vagina.
E. The os tincæ.
3. The external appearance of the calculus, of its natural size.
4. The stone, sawn through longitudinally, to shew the distribution of the laminæ.

The Case of a Lady at New York, North America, as mentioned in Letter to a Friend, dated May 23, 1801. *Communicated by* D. Cox, *Esq.*

I HAVE been greatly afflicted all last Winter with a complaint in my eyes of a singular nature; an instance of which none of the Physicians have ever heard or read of. After sleeping an hour or two, on opening my eyes, which I cannot resist,

* This stone, together with the diseased bladder, uterus, &c. I have presented to Mr. Astley Cooper, lecturer in anatomy and surgery, at St. Thomas's Hospital.

ſiſt, I am thrown into great agony; and this frequently happens four or five times in a night. My ſight is very little affected by it, and there is little or no appearance of inflammation after I am thoroughly awake and during the day. It is thought to be in the eye-lid; and as I have tried every thing and found no relief, I begin to apprehend there is no cure to be expected, but one which will terminate my exiſtence.

Note, The lady is upwards of ſixty.

To the Editors of the Medical and Phyſical Journal.

GENTLEMEN,

AS the plate repreſenting the dimenſions of the pelvis of H. Rheubottom did not appear in the laſt Journal, I ſuppoſe it will be in the next; and as you probably will have occaſion to make ſome mention of it, be ſo good as to ſay I omitted to ſtate in the caſe, that the child was ſtill born, but did not appear to have been dead for any great length of time, as no appearance of putrefaction had taken place, and the mother thought ſhe had perceived it move briſkly about three or four hours before the operation.

I remain, with the greateſt reſpect,

Yours, &c.

Mancheſter, Oct. 19, 1801. W. WOOD.

The Editors aſſure their readers, that whenever a plate is delayed, it is only for the ſake of collecting a ſufficient number of ſubjects to fill an octavo page; and they will take care that no plate belonging to any volume ſhall be delayed beyond the laſt Number of that Volume.

To the Editors of the Medical and Phyſical Journal.

GENTLEMEN,

I Have thought it worth while to ſend you a tranſlation of the account of a chemical analyſis of Vaccine matter, contained in the "Traité Hiſtorique et Pratique de la Vaccine," by Moreau, of Paris; a work which, in my opinion, exhibits a vaſt diſplay of philoſophical argument, and extenſive information.

It

It is eminently worthy of the attention of thofe who are interefted on this important fubject.

There is perhaps no part of the living fyftem which is more remote from illuftration by the prefent ftate of chemical phyfiology, than the compofition and action of morbid and animal poifons; but the afferted analogy between vaccine matter and that of hydatids, may lead to experiment, or at leaft to conjecture.

I am, &c.

Bath, Oct. 14, 1801. THO. CREASER, Surgeon.

" WITHOUT fuppofing that the chemical analyfis can throw any light on the mode of action of Vaccine matter, Citizens Huffon and Dupreyfen have very carefully made this analyfis. Here follow the refults which they have had the goodnefs to communicate to me.

" Expofed to the air and applied on a fmooth furface, vaccine matter dries quickly without lofing its tranfparency, becomes as hard as glafs, and peels off, adhering like a varnifh to the fubftances on which it is applied; it oxydates iron. If it is left to dry on the vaccine puftule, it takes the fhape of fmall hard globules. When fluid it is eafily diffufible in water. It is capable of the fame when hardened. There are inftances that two months prefervation of dry vaccine matter has in no degree weakened its reproductive and prophylactic powers when it has afterwards been diffolved in water. Expofed to the fire, it at firft thickens, exhales a flight fmell of carbonate of ammonia, and quickly changes itfelf into a light porous coal. It does not alter the colour of fyrup of violets, or of tincture of turnfol. Treated by alkohol, nitrate of mercury, nitrate of filver, nitrous acid, it gives a white precipitate which is not diffolved by potafh, or the muriate of ammonia. Sulphuric acid concentrated, oxalic acid, the vapour of oxygenated muriatic acid, potafh, barytes, muriate of ammonia, have no kind of action on it, not altering in any manner its exterior qualities. It appeared to us that the vaccine matter had *an analogy diftinctly marked* with the matter of hydatids.

" It refults from thefe experiments that it is compofed of water and albumen, of whofe proportions we are ignorant."

Moreau. Traité Hiftorique et Pratique de la Vaccine. Paris. 1801.

On the Opium of Lettuce.

DR. REDMAN COXE, of Philadelphia, has made a number of interefting experiments on the comparative virtues of the Opium obtained from common Lettuce and that from the Poppy. Some of thefe we propofe to lay before our Readers in a future Number; at prefent, we fhall extract the following important inference.

" All the fpecies of Lettuce contain the juice in a larger or fmaller proportion. The *lactuca sylvestris*, or *virosa* of Linnæus, contains it moft abundantly. That from which I obtained my opium was the *lactuca sativa*; it abounds in juice, and will ferve the double purpofe of cultivating for the table as well as for the fhop.

" I cannot avoid contrafting the fuperior advantages of the opium extracted from the Lettuce, above that procured from the poppy.

" Some judgment may be formed of the labour and expence attendant upon the cultivation of one acre of the poppy, by the account given by Mr. Kerr. He fays, ' An acre yields in the Eaft Indies, 60lb. of opium, which, at nine fhillings fterling (two dollars) per pound, is 27 *l.* an acre.' Now, at a moderate computation, it may be prefumed that *one half* of this fum is employed in the neceffary expences of ploughing, manuring, fowing, watering, collecting, &c. Say then, that 13*l.* 10*s.* are clear gain, (which muft be allowed to be a large proportion.) Now the *poppy* cannot be employed as an article of diet; whereas the *lettuce*, which grows here in the moft luxuriant manner, will amply repay the labour and expence (which at moft is trifling) attending its cultivation, by the fale of the fupernumerary plants taken up at an early period for diet, long before the developement of the opium principle. Here then the very labour employed has the double advantage of thinning the plants, thereby rendering the remainder more perfect; whilft it collects for the market fuch as have arrived to fufficient maturity for the table.

" The fale of thefe fupernumerary plants would, I conceive, at leaft, repay the labour, &c. attending their cultivation; and if the reft yielded, per acre, only 60lb. of opium, double the profit would arife from its cultivation above that of the poppy. The great abundance of the juice, however, and the luxuriance of the plant, render it highly probable that double that quantity, if not more, might be procured from the acre of ground.'

Some general Remarks on Fractures and their Treatment, tending to illustrate the Causes of Failure of Union of those related by A. Carlisle, Efq.

By G. Wilkinson, C. M. S. *of London, Member of the Royal College of Surgeons, and Honorary Member of the Chirurgo-Phyfical Society of Edinburgh, &c.*

To Dr. BRADLEY.

Sir,

SUCH cafes of failure of union in fimple fractures, as related by the ingenious and indefatigable Mr. Carlifle,* are luckily not very common; admitting however the truth of this remark fo far as it relates to recorded cafes of this fort, yet for any thing we know to the contrary, they may have, and do oftener occur than we are acquainted with. It is rare indeed, and requires fome degree of firmnefs of mind in men to relate unfuccefsful cafes, and confefs errors into which they have been inadvertently led; to human nature this feems too mortifying. Hence I have been led to efteem and refpect highly thofe perfons who frankly and candidly acknowledge their own imperfections, and have in view as their object, the correction and improvement of an art, that in itfelf is ftill allowed to be but imperfect and incomplete.

With thefe reflections I have been impelled, on the perufal of Mr. C's ufeful obfervations and inquiries, to offer my fentiments on what may appear to be the general caufes of retardation, or want of union in fimple fractures, noticing at the fame time the cafes he has recorded; and fhall alfo indulge myfelf with fome remarks on the common routine of practice, comparing this with what has fallen under my own obfervation, and with that which I have ufually adopted.

If I may be permitted to point out the general caufes of retardation, or want of union in fimple fractures, and which in many refpects may be applied to compound, they will refolve themfelves into two diftinctions, viz. general and local, or what may be termed, conftitutional and mechanical.

The general caufes may proceed from fome conftitutional difeafes, as rickets, *mollities ossium*, fcrophula, fcurvy, and in fome cafes of pregnancy; it may likewife be induced by a debi-

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* Vide Medical and Phyfical Journal, No. XXXI.

litated ſtate of the ſyſtem occaſioned by ſome diſeaſe antecedent to the accident, or brought on by too profuſe evacuations, low diet, and depreſſion of mental energy.

Mechanically or locally, it has ſometimes happened that a portion of muſcular fleſh, tendon, or ligament intervening between the ends of the bones, has prevented them from uniting; a faulty poſition of the limb by preventing the bones from coming into cloſe contact, and inducing œdema, which retards the venous circulation, as was uſually the caſe in the old mode of practice, by keeping the limb in a ſtate of extenſion; a detached piece of bone or ſplinter intervening between the ends of the fracture, is well known to prevent union, and what does not very often happen in ſimple fractures, although in ſome inſtances it has in an effuſion or extravaſation of blood from the rupture of blood-veſſels remaining long in contact, will produce the ſame effect; to ſome one or more of theſe cauſes, aided by the conſtitutional debility that enſued from the mode of treatment, are to be aſcribed the want of union in Mr. C's patients, which we ſhall notice more particularly hereafter.

In the uſual mode of treatment generally adopted of fractures, it is not uncommon in the very firſt onſet, to bleed largely from the ſyſtem, open the belly very freely, confine the patient to a very low diet, and apply warm fomentations, poultices, &c. This practice although in ſome inſtances proper, and even judicious, will in other caſes prove hurtful, and diminiſhes the vital energy, depreſſes the ſtrength, relaxes the ſyſtem, and favours the continuation of the tumefaction of the limb. By theſe means, which through over officiouſneſs are too frequently applied to prevent fever and inflammation, much hurt is often done, as the very thing is prevented which would produce a ſpeedy and healthy union of the parts, viz. the adheſive inflammation. If we add to theſe the continuation of low diet, and keeping the patient in bed in an uniform poſture, aſſiſted by copious perſpiration which often enſues, the debility is of courſe increaſed. Independent of any peculiarity or unfavorableneſs of the injury, or of the conſtitution of the patient, it cannot be doubted but a long and tedious cure will be the conſequence.

I have already concurred in opinion with Mr. C. that caſes of defective oſſification after ſimple fractures are uncommon,* and allow

* A caſe of this ſort fell under my own obſervation fourteen years ago. The wife of P. Wright, ſhoemaker of this place, upwards of ſeventy years of age, fell off a ſtool not more than thirteen or fourteen inches in height, and fractured her left thigh; this was neither diſcovered nor ſuſpected till more

allow they muſt be diſtreſſing to the patient and ſurgeon, but that "there is no decided inference to be drawn from theſe caſes, as to the certain cauſes of ſuch misfortunes," which are his words, is what I very much doubt; for this reaſon I have been been led, which I ſhould not otherwiſe have done, to glance briefly by a conciſe view, at what experience and obſervation have acknowledged as the general cauſes of a want of union, and ſhall now attempt to aſcertain, or account for what may be deemed the true cauſes of the failure of thoſe he has related.

In the hiſtories he has given us, from his own confeſſion, it evidently appears that the depleting ſyſtem, or what may be termed the antiphlogiſtic plan, ſeems to have been carried to too great an exceſs; the evacuations were extenſive, the diet low and ſlender, and although this is not mentioned in the caſe of the ſailor, yet the abuſe of ſpirits, conſtant uſe of tobacco, &c. by inducing eventually an *aſthenic* ſtate of the ſyſtem, from their injuring the ſtomach and digeſtive organs, the difficulty with which fractures of the thigh are retained in coaptation, his being on ſhipboard, its liableneſs to diſtortion from motion in ſuch a ſituation, if it were ever reduced at all, even according to the *common routine*; and if to theſe we add the diſpoſition to *ſcorbutic diatheſis*, which prevails more or leſs in ſhips of war in ſome degree, with the miſplaced poſition of the bones, which overlapped each other two inches for a period of fifteen months, and the circumlocution, if I may be allowed the expreſſion, of the oſſific proceſs, which in diſtortions, even in the beſt conſtitutions, takes up perhaps more than double the time to unite them, we ſhall not I apprehend be at a loſs to account for a ſort of diſpoſition, or *acquired habit*, that unfortunately in this very ſingular caſe, which from the failure of the operation performed upon it, as Mr. C. obſerves, "ſhewed ſomething, (and indeed beyond a doubt,) like a conſtitutional deficiency in the oſſific proceſs."

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more than three weeks had elapſed, when on being ſent for promiſcuouſly to ſee her, and ſhe complaining of an inability of moving her thigh, I diſcovered by the diſtortion and jarring of the bones, that it had been broke from that time. No appearance of inflammation ſeemed to exiſt, very little pain except on motion, and little or no tumefaction had occurred; and although I reduced it with the greateſt eaſe, and placed it in a proper poſition, yet after three months had paſſed over, no union had taken place. She then threw away the ſplints, and would not ſuffer them to remain any longer; and although ſhe lived about twelve months after this, the fracture ſtill remained looſe. This woman was infirm, much extenuated, and her pulſe low and languid. She could not be prevailed upon to take any ſort of medicine whatever.

Considering this however as an uncommon and almost *unique* case, it certainly was equally meritorious for the man to undergo as the surgeon* to attempt an operation of some difficulty by dissecting down, and sawing off the ends of the bones, with a fair and I may say rational view, of affording, perhaps, the only chance of an union.† Mr. C. in the course of his narrative of this case, has said, after fifteen months had elapsed: "The man was athletic, of a dark complexion, &c." If by this he means robust or strong, it seems not a little strange he might appear so, as we often see many hard drinkers who are not shrunk in their muscles, yet in their nervous system are much debilitated; Mr. C. however observes, when describing the general habit, or constitution of these three patients, the subject of his histories, that,

"In all these men the vascular system appeared sluggish, their pulses were slow, and the characteristics of inflammatory disposition were wanting."

Now whether this state of the system which Mr. C. has described, was natural or peculiar to these patients prior to the accidents, or it was their actual situation at the time they laboured under their indispositions from the mode of treatment, seems not ascertained; if it was natural or peculiar, the antiphlogistic plan and low diet was not only unnecessary but hurtful; if otherwise, the state of the system he has described must have been induced by the treatment itself. In the case of the house carpenter, where the fracture was in the middle of the os brachii, it is mentioned that his arm had *always* hung low in the sling, "the fore arm and hand were constantly œdematous, and the upper arm had stretched full two inches in length, so that the ends of the fracture were separated to this distance."

The position of this arm, which Mr. C. says had *always* hung low in the sling, and during the earlier period, was kept *remarkably straight*, and which he considers "*must have been in a favorable position for union*, to me appears strange, as it is a posture altogether unusual, not to say unnatural, and as it probably tended to produce, if not to encourage, the œdamatous swelling of the fore arm and hand, thereby proving unfavorable to the venous circulation in the limb, accounts, I think

* Some years ago, that accurate anatomist and expert surgeon, Mr. Lynn, senior Surgeon of the Westminster Hospital, performed an operation of this sort on the fractured thigh of a patient; but whether this may be the person alluded to by Mr. C. I am uncertain.

† The same operation has also been performed by Mr. White, of Manchester. Vide Cases of Surgery by C. White, &c.

think, *decidedly*, together with the extenſive lowering plan, for a want of union.* In the third caſe, which is that of the ſoldier, who had his "tibia broken and fibula diſlocated," he obſerves that the lowering plan was carried to the full extent, and "after ten months the broken bone was looſe," but admits that a "piece of ſplinter appeared to be intervening," yet allows as "very probable, that this man's limb became firmer," although he "never heard of his fate," is what moſt likely would take place, when the ſplinter was removed.

The remarks which I have already made on the common routine of treatment, may be equally applied to fractures in general, whether ſimple or compound. Inſtead of evacuating largely by bleeding from the ſyſtem, except in particular inſtances, it would be more proper to do this by leeches applied to the parts, and as a ſubſtitute for fomentations and warm poultices, which in ſimple fractures tend to keep up the tumefaction or ſwelling of the limb, and even in compound ones, bring on too large and extenſive ſuppuration, and not unfrequently profuſe hæmorrhagies; it would be much more adviſeable to uſe liberally as applications, ſedatives, ſuch as acetum. c. ſal. ammon. crud. aq. veget. min. c. ſp. vin. camph. and very light and ſimple dreſſings in compound caſes, and theſe removing as ſeldom as poſſible, unleſs when the diſcharge renders it abſolutely neceſſary.

To ſay that tailed bandages ought to be uſed on all occaſions, whether in ſimple or compound fractures, would be ſuperfluous, as this I truſt, in this enlightened age, is now adopted by all regular practitioners. In every caſe, whether ſimple or compound, reduction of the fracture ought to take place as ſoon as poſſible; I have frequently ſucceeded many hours, and even after a whole day has elapſed after the accident, where conſiderable ſwelling and tumefaction had begun. Cloths well wet with vinegar and cold water, or with cold water alone, where vinegar is not to be had, poured at ſome height upon the part or limb, or even ice, might be applied with ſucceſs, to diminiſh the ſwelling. This mode of treatment, which I am warranted from experience to enforce, will in general enable us to proceed to the immediate and prompt reduction of the fracture; for while I have employed my aſſiſtants in uſing theſe means, I have been occupied in making ready the neceſſary apparatus for reduction. As the limb ſhould be placed, the firſt

* I would aſk Mr. C. why the ſtraight poſition of the arm, and its hanging low in the ſling, is favorable to an union? Does he ſpeak from theory, or from experience, or facts that have fallen under his obſervation?

first thing we do, in an easy position, to relax the tension of the muscles, very little extension is seldom required, and the sooner the reduction takes place the better; for when this has been prevented or neglected, the great length of time that is usually taken up before the tumefaction and inflammation which are going on subside, the shortening of the muscles, and union that in some degree more or less ensues, the distortion still remaining, all these, together with the extreme aversion of the patient to being put to pain, and the force which is necessary to be applied to its reduction being liable to lacerate and tear the muscles; the whole of these considered, need not cause us to wonder a distorted limb will usually be the case, consequently a long and tedious cure.

It is now generally allowed, and I believe universally admitted, that fractures of every sort, whether simple or compound, in private practice, and that generally in the country, have terminated usually more favourably and successfully than in public hospitals, ships of war, and in naval and military hospitals, even under the most judicious treatment; and although the cause of failure in these instances has been principally attributed to a vitiated and contaminated atmosphere, usually prevailing in these places, and which it is not always in our power to prevent; yet when we consider the strict, and for the most part, lowering systematic plan of diet that is usually adopted in hospitals, and the general treatment, which for the most part is of a depleting nature, aided as it were by the depression of strength that often results from the energy of the mind being weakened by the absence of the patient's friends, we shall be less at a loss to develope these as some of the causes of retardation and want of success.

To the lowering plan of treatment not being so strictly pursued in private practice, by the patient's friends indulging him clandestinely in a more free and liberal diet, which is usually the case, it is probably owing that our ill-judged (though well-meant) intentions of depressing his strength, has been counteracted, and although such proceedings have been often productive of evil, yet it has been probably owing to this, as one principal cause, that fractures in general, in private practice, have terminated more favorably than in public hospitals, &c. where such deviations from the regular routine could not have been well effected.

By sudden and long continued abstraction of the stimulus of nourishing diet, the system will most assuredly suffer; of this fact I have been convinced from what has occurred in the early part of my practice, so that whenever a drunken or intemperate person meets with an accident, such as fracture, bruise, sprain,

ſprain, or injury from a fall, and even in ſeveral other medical and chirurgical diſeaſes (with ſome exceptions that may occur) I have found it even neceſſary, and not altogether ſafe, to detract entirely from their intemperate habits. For this hint I feel myſelf indebted to the late Profeſſor Monro, who has given us ſeveral caſes of the ſucceſsful indulgencies of bad habits;* and the ingenious Dr. Kirkland has noticed the ſame.† A drunken taylor fractured the tibia and fibula of his left leg; the bone protruded through the ſkin two inches, it was however ſoon reduced; in this caſe tin ſplints, a very uſeful late diſcovery in compound fractures, were uſed; the wound was dreſſed but very ſeldom, and although I dreaded a tedious cure from the nature of the caſe, and his well-known intemperance, yet by allowing him a quart of ale per diem, to which he added, by his own confeſſion, two glaſſes of gin, being about a half or one-third of his common allowance; yet, ſtrange to ſay, when three weeks were expired he ſewed light work in bed, and after ſix or ſeven weeks had elapſed walked to the workſhop, more than three hundred yards diſtance, by means of a ſtaff, the bones being completely united and the wound healed; no fomentations or poultices were uſed here, nor did he require bleeding.

In another caſe of ſimple fracture of both bones of the right leg, in a ſtout man of an intemperate habit, and who indulged himſelf with tolerable freedom, it was united in leſs than ſix weeks, he having at that time got about on crutches. This fracture was ſomewhat oblique, though not reduced till the day after the accident, as I was from home. He was treated in the ſame way as the former.

Many other inſtances I could relate of the ſame, but theſe I truſt may ſuffice as deviations from the uſual routine.

To illuſtrate in ſome meaſure the abſtraction of bad habits, in oppoſition to thoſe already related, it may not be altogether unneceſſary to remark, that in a caſe of fractured tibia in a gentleman, and one of the os humeri in an elderly woman, both of which had been accuſtomed to indulge freely, I took upon me to reſtrain them entirely from their bad cuſtom. I however found a great difference, for after ſix weeks had elapſed they were languid and depreſſed, their pulſes ſluggiſh, and appetite depraved. Although I afterwards permitted them to indulge ſomewhat in their habits, which I have no doubt they did, yet ten weeks had paſſed over before the ſtrength was reſtored,

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* Vide Edinb. Medical Eſſays, Vol. V. VI.

† Medical Surgery, Vol. I. II.

reſtored, and the cure firmly eſtabliſhed.—Theſe inſtances which I have related, and which came under my immediate inſpection, are not advanced with a view to recommend free indulgences as a practice to be adopted generally, as I am fully aware, where free licence is given, it is too often carried to exceſs; they are adduced only as deviations from the uſual routine, and tend to demonſtrate the imperfection of the lowering plan, and the neceſſity, in ſome meaſure, of conniving at habits, though in general hurtful, which cannot at all times be ſafely retrenched.

In violent pain, which is uſually attendant, in a greater or leſſer degree, in almoſt every ſort of fracture, ſprains, diſlocations, bruiſes, &c. and which is admitted as the criterion of the adheſive inflammation, or healthy union, that is going on, although it may be, and is in ſome caſes, combined with ſpaſm, I have ſometimes bled from the ſyſtem where a general plethora was obvious; otherwiſe, when this was not the caſe, topically by leeches. But as the violence of this pain is by no means conſtant, and almoſt invariably is increaſed towards night, no doubt from the acceſſion of the natural evening paroxyſm of fever, which commences about ſix or ſeven o'clock in the evening, I have been led particularly from a violent and diſtracting pain in my left wriſt, or carpus, which I ſprained ſixteen years ago, and which was aggravated at the period of the acceſſion of the natural evening paroxyſm, though pretty eaſy in the courſe of the day, to adopt at bed-time the uſe of ſudorific opiates; the quantity of the opiate is uſually increaſed every night, according to the urgency of the pain, and when coſtiveneſs ſupervenes, an opening medicine is given in the morning. To this mode of treatment, and what I have already noticed as my general practice, am I indebted for the ſpeedy and more ſucceſsful termination than uſually happens in accidents of this ſort. To the objection that may ariſe from the uſe of opiates becoming habitual, and to the reſt and ſleep procured by it being not natural, but forced; I reply, that pain is a diſeaſe, and eaſe and ſleep procured, even at any rate, is deſirable, and facilitates recovery. The diſeaſe or pain going off, as it does after a certain period in theſe caſes, the opium is no longer neceſſary, as the natural reſt returns without it.

As a proof of the benefit derivable from this mode of treatment, it may not be altogether uſeleſs to mention a ſtriking inſtance comparatively of its effects:—A hale ſtout man, ſixty years of age, or thereabouts, remarkably intemperate; and an healthy woman, aged forty, about two years ſince, fractured each of them their fibula, at the ſame period of time, and nearly

ly in the ſame place, about two inches above the ankle; the man, being plethoric, was bled ad vires, was permitted to uſe occaſionally a ſmall quantity of grog, which I ſuppoſe he uſed moderately; he took the anodyne ſudorific at bed-time almoſt every night on the acceſſion of pain, and when this was omitted, which to pleaſe his fancy he uſed to do, he found the want of it.

The woman, however, could not be prevailed upon at any rate to take any ſort of medicine; and although they were otherwiſe treated in the ſame way, yet, notwithſtanding the diſparity of their ages, the man got upon his crutches about five weeks after, whereas ſeven weeks elapſed before the woman did the ſame.

As ſome of my readers, who are veterans in the chirurgical art, and whoſe reputations are firmly eſtabliſhed by the conſpicuous rank they hold in their profeſſion, may be led to ſuppoſe my general remarks are too diffuſive, unneceſſarily minute, and common placed, and contain nothing but what is already known and made public, yet their differing from the general routine, as may be ſeen in Mr. C's paper, which is calculated to invite a liberal and free inquiry, will perhaps appear, on due reflection, not altogether unuſeful; and when it is conſidered that the want of time in ſome, inclination and even diſpoſition to reflection or ſtudy in others, may have prevented them from giving themſelves any trouble how they are to act; and, which is too often done, more from imitation than reflection or intuition, their attentive peruſal may poſſibly be not unattended with ſome profit. And as it is for junior practitioners chiefly, whoſe minds, principles, and practice, may not be yet formed, that I was impelled to be thus diffuſive,—this apology, I truſt, will be deemed ſufficient.

To Mr. Carliſle, with whom I am by no means perſonally unacquainted, it may appear I have taken too great liberties in my remarks on the deſcription of his caſes; but as this to me ſeemed abſolutely neceſſary towards a full and, I truſt, not unjuſt inveſtigation of a ſubject that required, from his own free and candid invitation, a fair diſcuſſion, I hope he will not conſider what I have ſaid as bordering on illiberality. If I have miſtaken his meaning, I am open to conviction, and promiſe, on his convincing me of any imperfections, to retract what may appear to be erroneous.

I am, Sir, your's, &c.

Sunderland, Sept. 27, 1801. G. WILKINSON.

To Dr. BRADLEY.

Dear Sir,

As your Journal is not only medical but phyfical, the following *Sketch* feems to come within its appointed fcope, and, therefore, I addrefs it to you for infertion, provided you think that it will not be unworthy of its room. I am not infenfible to the value of honeft fame to an individual, nor blind to the advantages arifing to the public from his defire of repute, neither am I difpofed to juftify an envious carping at inventive genius; but I am folicitous to encourage modeft merit, and to hinder unaffuming man, of native abilities, from being daunted with the din of trumpeted difcoveries. Hence it is my intention, in the fubfequent animadverfions, to inveftigate generally the real merits of thofe, called inventors, or original difcoverers, and to try the juftice of their title to thefe honorable appellations. As in the cafe of a nation, fo in that of a fingle perfon, it is at once flavifh and detrimental to fubmit to the univerfal influence on the opinions of mankind, which they, who conceive themfelves to be creative geniufes, are prone to aim at, by holding forth their works as inftances of novelty, or models of perfection, undefcried or unequalled at any former time by any other of the human race.

The labours of an extraordinary genius, it is true, in eftablifhing the objects of his purfuit, are apt to dazzle us with their fplendour, or awe us with their profundity, and induce us to concur in the fancied boundary of human knowledge. But who can pretend to fay, that thus far the human intellect fhall go, and no further? Who will venture to affert, that here fhall the proud waves of the intellectual powers be ftayed, and vainly beat againft an infurmountable barrier? Who would with weary fteps travel over the beaten path, to places already known, if he had not in profpect the undifcovered country, to urge on his hope and ambition? The man of talents and induftry, I am certain, may yet continue to apply all his faculties with unabated vigour, and unapalled expectation of advancing in the profecution of his defigns. It is a vifionary idea to fuppofe, that human degeneration will bring on a bankruptcy of the literary world fooner than the laft univerfal wreck! The poffible exiftence of fuch a world of retrograde beings, is no more deplorable than ridiculous, wandering on, as it were, ufelefs and exhaufted, and bewailing their condition. Convinced of the inexhauftible fources of human capacity, I venture to affirm, that in all fimilar ftages of fociety, ftamping on the

the ground would raiſe up a genius, perhaps a hoſt of geniuſes, equal to any that had gone before in ſuch walks! Wiſhing then, that the ample plain, which Nature has provided for the mind of man, be left open for its uncontrolled and undaunted courſe, I beg your acceptance of

A SKETCH,
Concerning the Queſtion,
Is there any thing which can with juſtice be pronounced *Entirely New?*

At a remote period in civilized ſociety, nearly 2,800 years ago, a wiſe and eloquent preacher aſked, 'Is there *any* thing whereof it may be ſaid, ſee, this is *new?*' To which queſtion an anſwer is furniſhed by the ſame ſagacious obſerver, who pronounces, 'It hath been already of *old time*, which was *before us*.'* In examining the progreſs of ſociety, we ſhall find that it has certain ſtages, and that men, in parallel ſituations, muſt think and act alike. The circle of human events is not immenſe; and in its revolution it muſt happen, that the ſame point in the circumference will, repeatedly, be uppermoſt. 'The wind goeth toward the ſouth, and turneth about unto the north; it whirleth about continually, and the wind returneth again according to his circuits.'† That appearance of novelty, which the face of things wears to the bulk of mankind, is nothing but a *ſhow*; what men act, men have acted; what men think, men have thought. Yet, in this round, whilſt numerous and ſtriking inſtances of great attainments in ſcience and arts are obſerved, man does not ceaſe to be the man of Nature.

It is true, that in paſſing through the different periods of the ſocial ſtate, man ſucceſſively acquires the ideas which, in their turns, thoſe periods are fitted to ſupply; but the gradual improvements which he makes in that ſtate, are only thoſe which Nature permits, or even which ſhe commands him to make at the ſtages which ſhe herſelf has fixed for his exertions. To the ſocial progreſs, at the different ages of ſociety, belong certain ſums of intellectual property, originally, and without borrowing from exterior funds. Thus, the ancient Peruvians, without the help of either the Egyptians, the Phœnicians, or the Greeks, had eſtabliſhed wiſe laws, and, in certain points, had made great advances in the arts and ſciences.

In Aſia can be traced evident veſtiges of governments of

* Eccleſiaſtes, chap. I. v. 10.
† Ibid. v. 6.

extreme antiquity, and far advanced in the sublimest sciences, now dwindled into new and inferior forms; *there* likewise may be discerned, in the living manners and sentiments, ideas which Europeans have contemplated with wonder and admiration, in both sacred and profane writings; and *there* may be observed many things conducive to the purposes of life, unknown to the refined nations of Europe, preserved during thousands of years, amidst many revolutions, which, though they change the families of the sovereign, pay greater respect to established laws, customs, and modes of thinking, than the more sweeping convulsions of our western nations.

In Asia, also, many operations, which in Europe cannot be performed without a complication of machinery, are executed with much greater simplicity and ease. In that primitive and most essential art, *agriculture*, wherein England has been supposed to surpass all the rest of the world, Asia, it appears, is greatly her superior on the score of antiquity, and her competitor, at least, in some important branches of the employment. The model of a plough, for instance, used in the drill husbandry, has been lately brought from India, which, for simplicity of construction, ease of management, and lowness of price, is esteemed vastly preferable to any thing of the kind that has been hitherto known in these European countries.

It is held a question, if there exist in Nature such a being as a man of real creative genius? No doubt, there are in the mental capacities very discernible shades; no doubt, the sciences and the arts, in their course from age to age, are enlarged and perfected; no doubt, discoveries are made, and inventions proclaimed, but they are never on a sudden, and consequently, no one discovery or invention, so called, ought to be considered as the work of an individual. That which we name *invention*, therefore, ought, in reality, to be deemed only a succession of trials and attempts which follow each other, more or l ss easily or laboriously, in a series of ages. Hence it may be inferred, that the men to whose names it is customary to attach the whole celebrity, would, in several cases, find it difficult to recognise all the parts of the work imputed to them, or even to comprehend the lessons of those who believe themselves, and above all, nominate themselves, their disciples.

Several branches of knowled e, which have been supposed, or claimed, to be of modern production, were certainly known to the ancients, as facts at least, if they were unacquainted with the tru methods of explaining the causes. The Chinese were acquainted with the use of the mariner's compass, with the composition of gunpowder and porcelain, and with the art of printing long before the Europeans. Dr. Falconer, in the Manchester

Manchester Memoirs, plainly shows, that what was reckoned an original discovery of Dr. Black, viz. 'that water which had been boiled, was more easily frozen than water that had not undergone that operation,' was known to Hippocrates, Aristotle, Pliny, Galen, and others. He also brings several passages from ancient writers to prove, that Dr. Black's doctrine of latent heat was well known to them. Juvenal, the Roman satirist, who lived in the same century (first) with Pliny, observes, that water is rendered more susceptible of coagulation by boiling it:

'*Frigidior Geticis petitur decocta pruinis.*'

In the East Indies, where ice is prepared by means of evaporation, it is found necessary to boil the water, to facilitate and perfect the process, a piece of knowledge, which, it does not appear to us, that the Easterns received from Dr. Black, or from any other European.

It has been lately shown, that the discoveries in chemical philosophy and physiology which have been ascribed to Mayow, relative to the composition of the atmosphere, its nitro-aerial quality, and its use in respiration, had been anticipated and published by Dr. Hook, from four to ten years earlier than Mayow; the Micrographia of the former having been printed in 1664, whilst the Treatise of the latter, on Respiration, was not given to the public until 1668, and his Treatise on Nitre, &c. not until 1674.*

Perhaps all the authors, to whom great discoveries in philosophy have been ascribed, have, in truth, rarely or never ascended far above the common level of the philosophical knowledge of the ages in which they respectively lived. The harangues and discussions in the public assemblies at Athens, the moral knowledge which the people had generally acquired, the writings and exhibitions of the drama, the errors and attainments of former philosophers, and a variety of other circumstances, had so prepared the way for the entry of the philosophy of Socrates, as to make it impossible that there should not some such philosopher arise amongst the Athenians about that æra. Aristotle was but a disciple of the Socratic school, from the doctrines of which, and from those of the cotemporary sophists, his logics and scientific arrangements derived their birth.

The discoveries assigned to Bacon, celebrated as being scientific by *instinct*, were made at a time when the world began to grow weary of the logic and metaphysics of the schools; and when

* Philosophical Magazine, No. XII. p. 370.

when experiment and induction had been already tried with success; and when a fortunate coincidence of other causes conspired to favour his genius for scientific contemplation. The researches of Galileo, if they did not discover the gravity of the atmosphere, yet they approached so near it, as to leave no very extraordinary merit to his pupil Torricelli in its actual accomplishment. And if we dared, with an unawed eye of impartial revision, to approach the hallowed monumental tablet of the great Newton's fame, we might discern, that the meed of renown ought, in reality, to be divided betwixt him and other inquirers, amongst whom Galileo and Kepler would deserve a considerable portion.*

It is remarkable, that some of Sir Isaac Newton's most refined speculations were neither peculiar to himself, nor new to other people, not even to those nations whom we hitherto have been taught to consider dull and illiterate. The whole of his theology, and part of his philosophy, are found in Asiatic writings. That *most subtile spirit*, which he suspected to pervade natural bodies, and, lying concealed in them, to cause attraction, repulsion, refraction of light, electricity, &c. is described by the Hindus as a *fifth element* endued with those very powers.†

Because Newton made considerable progress in the theory of light, discoveries in this subject, which really belong to others, have been ascribed to him. For instance, he is said to have discovered, that the refrangibility of light is in the inverse ratio of that of all other bodies; whereas this he did not discover. Descartes first published the discovery of the constant ratio of the series of incidence and refraction, though it was certainly known before to Willebrord Snellius; and Kepler was very near discovering it.‡ But, if Newton's doctrine of light and colours be fundamentally erroneous, as lately has been alleged, his followers will of course no longer contend for his right to the honour of discovery. From a careful repetition of the experiments by which Sir Isaac effected his analysis of light, phenomena, materially different from those which appeared to him, were discovered, and found to lead to a change of his theory of light and colours. This antagonist to the Newtonian hypothesis concludes from the whole, that Sir Isaac has erred in believing every ray of common light to be composed of seven differently coloured, primogenial, elementary rays. On the contrary,

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* Monthly Magazine, Vol. V. p. 117.
† Asiatic Researches, Vol. IV.
‡ Thomson's Fourcroy, Vol. I. p. 140.

contrary, this author's obſervations enable him to infer, that all light is originally of one uniform *white colour*; that its diverſity of colours, in inflexion, is occaſioned by the bendings, ſeparations, and other changes of its parts in paſſing through a tranſparent medium, or under attraction by the edge, angle, or ſide of an approaching body; and that, by conſequence, the Newtonian theory of light and colours is not fundamentally true. This oppoſite theory has a juſt claim to perfect credence, if accuracy of obſervation, logical fairneſs of induction, and a good ſtyle of compoſition, can eſtabliſh its titles. The ſame doctrine has been more haſtily and obſcurely ſuggeſted by Mr. Heron, in his Elements of Chemiſtry.*

With reſpect to that moſt important diſcovery, the *circulation of the blood* in the human body, inſtead of the immortal Harvey, as he is ſtyled, having a right to the entire merit of it, we ſhall find on a cautious review of its hiſtory, that the way was paved by other anatomiſts and phyſiologiſts, and that he did little more than corroborate their obſervations. It is highly probable that Harvey obtained the foundation of his knowledge in Italy, where he ſtudied with remarkable diligence under the famous anatomiſt, Fabricius ab Aquapendente, who certainly was maſter of the doctrines of Veſalius, Servetus, Columbus, and Cæſalpinus, whoſe labours had almoſt compleated this field of inveſtigation. It was in the very end of the 16th century that Harvey, as was the cuſtom of the times, went to ſtudy medicine in Italy, and muſt have learned the exiſtence of the valves of the veins from Fabricius, who had diſcovered them ſome years before, and doubtleſs demonſtrated them in his lectures. The great Veſalius, near 100 years before Harvey, publiſhed a noble ſyſtem of anatomy. Servetus, followed by Columbus, both in the times of Veſalius, had clearly given the circulation of the blood in the lungs, which Dr. Hunter reckons, at leaſt, three quarters of the diſcovery; and Cæſalpinus had many years before Harvey, publiſhed, in three different works, all that was wanting to make the doctrine of the circulation complete. From the diſcoveries reſpecting the veſſels, and courſe of the blood through the lungs; from the obvious phenomena of ligatures on different veſſels; from the practice of ſurgery, with regard to bleeding and blood-veſſels; from the action of the heart when expoſed to view in living bodies; from all theſe circumſtances, which ſo evidently proclaim the circulation, nothing more ſeems to have been required for crowning the diſcovery,

* Philoſophical Magazine, No. XXVIII. p. 365.

covery, than laying aſide groſs prejudices, and fairly conſidering obvious truths.

In merit, therefore, Harvey's rank muſt be comparatively low as a diſcoverer. So much had been found out by others, that little more was left for him to do, than to dreſs it up into a ſyſtem; and that art, every judge in ſuch matters will allow, required no extraordinary talents. Yet, eaſy as the undertaking was, it procured for him the epithet, *immortal.* " But none of his writings," ſays Dr. Hunter, " ſhew him to have been a man of uncommon abilities. It were eaſy to quote many paſſages, which bring him nearly to a level with the reſt of mankind. He lived almoſt thirty years after Aſellius publiſhed the Lacteals; yet, to the laſt, ſeemed moſt inclined to think, that no ſuch veſſels exiſted. Thirty hours, at any time, ſhould have been ſufficient to remove all his doubts." And what leſſens ſtill more Harvey's claim to diſtinction is, that ſo far from his doctrine being perfect and well founded, with the ancients he ſuppoſes, in contradiction to an actual law of the circulation, that the blood moves from the heart through the veins. He either knew not, or did not attend to that eſſential part of the ſyſtem, the contractile power of the arteries; and he did not admit, or at leaſt very indiſtinctly conceived, the immediate communication of the arteries and veins.*

Similar ſtrictures, perhaps, might with juſtice be made on ſome of our cotemporaries, who aſſume the excluſive credit of diſcovering the abſorbent ſyſtem. Look at what was done, ſince the year 1627, by Aſellius, Pecquet, Rudbec, Bartholine, Highmore, &c. concerning the lacteals and lymphatics, and then remark what was left for recent labourers in this field, or how they could fail in bringing it to the preſent ſtate of culture.

Adverting to another eſſential function of the human ſyſtem, namely, the act of *Reſpiration*, the merit of diſcovery concerning its laws is very much divided. On this ſubject, the opinions of the ancients were merely conjectural; and notwithſtanding many ingenious attempts in after ages, no ſatisfactory doctrine appeared till the year 1776, when that profound chemiſt and much lamented martyr, Lavoiſier, publiſhed an hypotheſis, which laid the foundation for the ſubſequent advances in this walk. To the labours of Lavoiſier were added thoſe of Cigna, Prieſtley, Crawford, &c.; the latter of whom unfolded one

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* Flemyng's Lectures, Lect. IV. Aikin's Memoirs of Medicine, p. 288, et ſeq. Hunter's Introductory Lectures, p. 40—47.

one of the moſt important uſes of reſpiration, that is, its office in deriving the element of animal heat from the air. But this beautiful theory of reſpiration is yet attended with ſome difficulties, which we hope ſoon to ſee entirely overcome by the ingenuity, induſtry, and zeal of modern enquirers.

In the inſtance of what is called the new and true theory of *Chemiſtry*, does the merit of diſcovery belong to Lavoiſier? Or rather, are we not to ſhare the honour betwixt Van Helmont, Boyle, Black, Macbride, Prieſtley, &c. who had, ſucceſſively or collaterally, purſued chemical inveſtigations, and traced out the general truths of this ſcience, until it was almoſt impoſſible that ſome one or other ſhould not ſtumble on the diſcoveries of the French philoſopher. In fact, were we minutely acquainted with the ſteps by which claimants of grand diſcoveries were conducted to their knowledge, we ſhould not fail to abate much from the fervour of admiration and applauſe which we at preſent beſtow on thoſe perſons. Yet in philoſophical, as in other caſes, we are at all times too apt to praiſe him who impoſes the key-ſtone, as if he had built the whole arch. *

Many more examples might be adduced to illuſtrate and confirm the truth of the general poſition, that in reality there is not any thing under the ſun whereof it can be ſaid, "*This is abſolutely new*," but more would be ſuperfluous, and would be inconſiſtent with the nature of a *ſketch*. I cannot, however, omit this opportunity of teſtifying the gratification which I enjoy from obſerving, in the courſe of this ſurvey, the diſtinguiſhed rank to which my countrymen are juſtly entitled in the republic of letters. The names of Boyle, Eeles, Macbride, Kirwan, and Crawford, I obſerve engraved high on the column of ſcience, and ſhould remain for ever engraved on the hearts of the friends of our united kingdom, of philoſophy, and of mankind. Nor can I omit this opportunity of doing juſtice to the memory and merits of one of theſe deſerving men, the late ingenious and amiable Doctor Macbride. In the courſe of a ſet of experiments made to aſcertain the ſolvent power of quick-lime, and firſt publiſhed in the year 1764, Dr. Macbride diſcovered, that an artificial ſulphureous water could be prepared, reſembling the natural kind in all its ſenſible properties; and, in his apparatus on this occaſion, he employed an *air-valve*, ſuggeſted to him by an ingenious friend, Wm. Deane, Eſq. and which has been introduced into ſucceeding machines for a ſimilar purpoſe.

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* Monthly Magazine, Vol. V. p. 117.

Many years before that time, it is true, Boyle, Hales, and others, made numerous experiments on air, and chiefly on the analytical plan too, but not with a design of decompounding the constituent elements, so as to reproduce the original substances. Later experimenters did little more. Dr. Siep, of Pyrmont, in the year 1736, and Dr. Brownrigg, of Whitehaven, in the year 1765, communicated to the Royal Society of London, their suggestions relative to the residence of carbonic acid gas, or fixed air, in natural Spaw waters; but, although they decomposed these waters, they do not furnish us with any expedients for imitating them by means of art. Dr. Falconer also published a Treatise on the Bath Waters in the year 1772, wherein he treats of carbonic acid gas, as being an ingredient in many natural spaws, but drops no hint, in that edition, about composing similar waters, by imparting the gas to common water. Nor does Dr. Rutherford, who, at the latter end of the same year, wrote an ingenious dissertation on carbonic acid gas, give the smallest intimation of his being acquainted with any method of making factitious mineral waters.

In that very year, however, viz. 1772, Dr. Priestley came forward, contending in a famous pamphlet for the honour of a discoverer, and denying the title of every other person to even a sprig of laurel on the occasion. But, as to the validity of this claim, it need only be remarked, that Dr. Macbride's book was before the public, and very generally read and applauded, *eight years* antecedent to the appearance of Dr. Priestley's pamphlet. Dr. Nooth, to whom the first design of the *Glass Machine* is ascribed, whilst admitting that Dr. Priestley was the only person who had *published* any description of an apparatus purposely for communicating carbonic acid gas to aqueous fluids, asserts that various methods for doing so were contrived, at farthest back, from the year 1766, but were not publickly notified at the time; yet he makes no mention of Dr. Macbride's proposal, though it was given to the world two years prior to that date. As to Mr. Venel's extract from "*Memoires de Mathematique et de Physique*," it did not appear until after Dr. Priestley's pamphlet had been translated into French; and was not intended to vindicate to himself Dr. Priestley's supposed discovery, but in reality to claim precedence of Dr. Brownrigg. So that from this state of facts, we may justly conclude, that Dr. Macbride, assisted in one point by his countryman, Mr. Deane, is entitled to the credit of first suggesting in these countries, not only factitious mineral waters, but also the basis of that machine by which they now are so excellently composed. For, what Bacon says on this subject, in his work, "*De Dignitate et Augmentis Scientiarum, Lib. IV.*" are but loose hints, or rather a kind of predictions,

predictions, ſuch as he throws out on many other points relating to arts and ſciences.

Upon the whole, then, we may conclude in the words of the writer, whom we quoted at the beginning, "The thing that hath been, it is, that which ſhall be; and that which is done, is that which ſhall be done: and *there is no new thing under the sun.*"

Londonderry, Sept. 20, 1801. W. PATTERSON.

P. S. It may not be amiſs on this occaſion briefly to note, that after Grew, Camerarius, &c. Vaillant by his Botanicon Pariſienſe in 1718, paved the way for the Sexual Syſtem of Botany by Linné, in 1735; and that Dr. Darwin's charming Engliſh Poem on the Loves of the Plants, was preceded by the *Connubia Florum*, an elegant Latin poetical effuſion, publiſhed by Dr. de la Croix in 1728. The Poem in Vaillant is ſigned, Mac-Encroe, Hibernus, Medicinæ Doctor; and the two Epigrams are ſigned, Demetrius de la Croix, Doctor Medicus.

Dr. ADAMS, *on Consumption.*

DR. ADAMS's Correſpondent informs us, that he has received another letter from that gentleman, in which he very much enforces the objection he made before, relative to ſending patients late in the diſeaſe to Madeira. It muſt be admitted that the fault is more commonly in the patient, or his friends, than in the phyſician, who has frequently adviſed the voyage ſeveral months before he could prevail on the patient to undertake it. This delay often proves fatal; and what much increaſes the diſtreſs of a family is the loſs of a relation at a diſtance from home. All this is well known to the Faculty, and perhaps ſuch cautions might be altogether unneceſſary in a work intended entirely for medical readers. One general caution, however, he cannot help enforcing: If a patient has been loſing ground all the winter, with tolerable management he may do as well during the ſummer in England as in moſt other parts of the world; if he has grown worſe during the ſummer, he is not likely to improve by any removal to a warm climate: But if he has found a reſpite during the ſummer, for complaints exaſperated during a former winter, or if at any period of the winter he is threatened with ſymptoms which render a mild and ſettled climate deſirable, Dr. A. ſcruples not to ſpeak of Madeira as in his former letter; having ſeen

many released from a state of the disease which in England proves invariably fatal in the course of the winter.

These remarks may be extended to all those pulmonary diseases which are exasperated by a winter, whether *Tussis Senilis*, which is called the Humoral Asthma, as well as all scrofulous complaints.

Madeira, Sept. 17, 1801.

To the Editors of the Medical and Physical Journal.

Gentlemen,

If you think the following desultory remarks on Animal Chemistry will be any ways interesting to the readers of the Medical Journal, your insertion of them in that work will oblige, Your's, &c.

Trowbridge, Aug. 28, 1801. J. M. MOFFATT.

It is rather extraordinary that the curious discoveries of Galvani and others, relative to animal electricity, have not led to some more important information concerning the functions of the nervous system. Perhaps this may be owing to the attention of physiologists not having been properly directed towards the effects of the electric fluid on the animal fibre. The late experiments of Volta * and Cruikshank,† sufficiently prove, in opposition to the opinion of Humboldt and others, that the Galvanic influence must be electricity, or a modification of it. The opinion that the electric fluid is that power whereby the functions of the nervous system are performed, has had some adherents, ever since the discovery of the electrical powers of the torpedo and gymnotus electricus. But there is a book, which was published more than thirty years since, and probably written long before its publication, in which the identity of the electric and nervous fluids is hinted at.‡ The same opinion has also found an advocate in Mr. Purton, the author of an ingenious paper published in your

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* Vide Monthly Magazine, Vol. IX. p. 586.

† Idem. Vol. X. p. 50.

‡ Vid. Systemi de la Nature, Part. prem. p. 126, note (36). This impious publication is said to have been composed, in part at least, by the celebrated French philosopher Diderot.

your Journal.* But none of thofe writers, nor any others that I have been able to confult, have attempted to explain the *modus operandi* of this wonderful fluid. I fhall not, at prefent, endeavour to fupply the deficiency; the following hints and quotations being rather defigned to draw the attention of your readers towards the fubject in queftion.

Electricity is well known to be a powerful chemical agent; may we not therefore conjecture that it operates on the fyftem, by producing thefe chemical changes, the *tout enfemble* of which conftitutes life? This idea doubtlefs leads to the introduction of what has been called the chemical pathology; by the opponents of which I fhall probably be accufed of turning the human frame into a laboratory; and be told, that becaufe living animal fubftances have a power of preferving themfelves from decompofition, in fituations where dead animal fubftances would foon undergo that procefs, life muft depend on fomething that is exempt from the influence of chemical affinity. In anfwer, we may obferve, that the difference in the effects of air, &c. on living and dead animal bodies, may as eafily be accounted for, by fuppofing that death is a deduction of fome kind of matter which entered into the compofition of the living body, as by admitting the exiftence of a vital principle, or fome other equally undefinable agent. It is, at prefent, pretty generally allowed, that *some* of the functions neceffary to life depend on chemical affinity. Few will deny this to be the cafe with refpiration and digeftion. Reafoning from analogy, we may refer mufcular motion and fecretion to the fame caufe. The following quotations will fhow that this opinion is not wholly fingular.

"Les nerfs n'exercent-ils pas un effet chimique † fur les vaiffeaux fécrétoires? La décifion de cette queftion eft liée à la folution du grande problême, qui confifte à favoir fi toutes les modifications chimiques ne fe réduiffent pas à des mouvements; idée dont *Sage* s'eft beaucoup rapproché dans fa chimie mécanique. La contraction des mufcles elle-même ne ferait-elle pas le réfultat d'un mélange chimique; & fous ce point de vue, le mouvement n'eft-il pas liée aux affinités, comme celles-ci font au mouvement?" ‡

"On ne peut guère concevoir que les nerfs agiffent fur les fibres mufculaires, fans qu'il arrive un changement chymique dans la nature d'un fluide qui feroit contenu dans les uns par l'acceffion

* Vide Medical and Phyfical Journal, Vol. IV. p. 334, et feq.

† Roil & Gauthier, de Irritabilitate, 1795, p. 4.

‡ Expériences fur le Galvanifme de F. A. Humboldt; Traduction de l'Allemand, par Jadelot, p. 303.

l'acceſſion de celui qu'y tranſmettroient les autres, ni que les objets extérieurs agiſſent ſur les nerfs autrement qu'en produiſant un changement du même genre."*

The idea ſtarted at the cloſe of the latter of theſe quotations, that external objects give riſe to ideas, by producing chemical changes in the nerves of ſenſation, appears to be very ingenious, and highly worthy of attention; but the intricacy of the ſubject will probably prevent Cuvier's conjecture from being verified by experiments.

Neither Humboldt nor Cuvier ſeems to have had any preciſe ideas relative to the nature of the chemical changes which they ſuppoſed to take place, but merely to have offered their remarks as conjectures worthy of farther conſideration. As ſuch I ſhall leave them, for the preſent, to your readers.

Before I conclude, however, I ſhall take the liberty to add, that ſome facts which have occurred to me, have induced me to form a Theory of Muſcular Motion as depending on certain chemical proceſſes. If the reſults of ſome intended experiments ſhould corroborate thoſe already made, I may probably lay this theory before the public.

To the Editors of the Medical and Physical Journal.

GENTLEMEN,

THE following caſes of Dropſy, cured by Digitalis Purpurea, ſhould they meet your approbation, I requeſt you to inſert in your valuable publication.

I am, &c.

J. S. HOWARD,

Member of the Royal College of Surgeons, London.

Hull, Oct. 1, 1801.

CASE. I.—On the 8th of April I was requeſted to ſee Mary A—n, whom I found labouring under aſcites and anaſarca. She informed me, ſhe had been afflicted with a ſlight dry cough for many years; at the commencement of March ſhe was ſeized with a diarrhœa, the prevailing epidemic, which continued for a fortnight, at the ſame time ſhe complained of very

* Leçons d'Anatomie Comparée de G. Cuvier, Tom. I. p. 52.

very great pain in the hypogaſtric region, which ſhe compared to that of child birth; when the diarrhœa ceaſed, her abdomen began to ſwell from the inferior part; at this time ſhe voided but a ſmall quantity of urine, which was of a red colour. In the right hypochondriac region was a large hard tumour, which extended down as low as the umbilicus; there was a very evident fluctuation in the cavity of the abdomen, with great oppreſſion in breathing: She was not able to lay upon her left ſide; her legs were alſo anaſarcous; at firſt I ordered her the the following formula:

℞. Calomel pta. gr. x. Pulv. radic. ſcillæ ℈j. Sapon Venet. ℈j. Syr. zinzib. q. s. fiat maſſa & divid in pilulas xvj. Capiat tres ter de die.

On the 10th her ſymptoms were nearly the ſame; her pulſe more frequent and hard.

12th. She was ſeized with a diarrhœa, and griping pains in the inteſtines; as the calomel was ſuppoſed to have produced this effect, a mercurial bolus with opium was ſubſtituted, *hora somni.*

13th. The pain in the inteſtines and diarrhœa were abated.

14th. She appeared much relieved.

15th. She was much worſe; breathing very urgent, with a ſtrong pulſe. Ordered her the following:

℞. Fol. digitalis purpurea ℈ij. Infunde ex aq. bullient ℔ſs. ad horas duas cola adde ſpir. æther. nitros ℥j. Ft. mixtura ſum. coch. iij. 4tis horis.

16th. Breathing leſs troubleſome; had voided a large quantity of urine.

17th. Much as yeſterday. Rep. mixtura.

18th. Much better. Rep. mixt.

19th. The tumour of the abdomen entirely gone.

20th. Continues recovering; voids large quantities of urine, but rather coſtive. Ordered an aperient draught, with infus. ſennæ.

21ſt. Diſcontinued the mixture; ordered a nouriſhing diet, and a decoct. cortic flav. which ſhe continued taking till the 3d of May; her body reduced to its natural ſize, and every other ſymptom of aſcites and anaſarca gone; ſtill perſevered in the uſe of the cinchona till the 12th inſtant, when ſhe found herſelf quite recovered.

CASE II.—Thomas R—n, aged ten years, I attended on the firſt of May; found his legs extremely œdematous, with a fluctuating hard abdomen; tenſe pulſe, continual thirſt, and voiding very little urine, with every other ſymptom of anaſarca. Gave him the following:

℞. Tinct.

℞. Tinct. digitalis purpurea ʒiij. Aqua cinnamomi ℥iv. Spir. nitri dulcis ℥ſs. M. cap. coch. j. 3tis horis.

Second day. Complains of violent pain in the inteſtines; ordered pulv. opiat. (P. N.) gr. xv. ſtatim capiendus, and to continue the mixture.

3d. Much as yeſterday. Cont. mixt.

4th. Bowels eaſy; voided near a quart of urine during the laſt twelve hours. Cont. mixt. et p. anod.

6th. Much better; legs nearly their natural ſize.

7th. Continues better; voids a large quantity of urine.

9th. Still better; omitted the mixt. and ſubſtituted decoct. cinch. flav. which was continued for ten days, when he was quite recovered.

To the Editors of the Medical and Phyſical Journal.

Gentlemen,

THE *Scarlatina Anginosa*, in a form ſimilar to the epidemic deſcribed by Dr. Withering, has been very prevalent this ſummer and autumn in ſome of the neighbouring towns. The infection was brought into one family of this place, but fortunately ſpread no further. In this family four of the children were attacked with it. The fever in none of them ran very high; the throat was but ſlightly affected; and only in one caſe was there delirium. In one other caſe there was none of the ſcarlet eruption; but in all, the febrile ſymptoms were ſucceeded in a few days by thoſe of dropſy, which commenced with general anaſarca. To this ſucceeded aſcites, and then hydrothorax, and three of the caſes terminated fatally, within a month of the febrile attack. In the progreſs of the dropſy numerous petechiæ appeared in all the four caſes, chiefly on the trunk and upper extremities. In the three unfortunate caſes they made their appearance only a few days previous to their death, and they were very numerous on the fourth, at the time I was called upon to viſit the family. I made my firſt viſit the day after that on which the ſecond child died, and found the mother hourly expecting the death of the third, and in great anxiety about the fourth. I ordered Port wine for both, an alkaline ſolution for the third, and a gentle emetic for the fourth. They both ſeemed ſomewhat relieved next day, and I deſired the alkaline ſolution to be given to both, and ordered an electuary of jalap and cream of tartar to be taken freely.

By

By this plan the ſwellings were conſiderably reduced, but the dyſpnœa, and other ſymptoms of water in the cheſt, ſeemed to increaſe in the third child, and he died two days after. I had the ſatisfaction of examining this patient after death, and found about four ounces of water in the pericardium, and the ſame quantity in the cavity of the thorax. There were ſeven or eight ounces in the abdomen, and none in the ventricles of the brain. The liver ſeemed ſomewhat enlarged, but otherwiſe healthy, the lungs were perfectly ſound, nor were there any other morbid appearances. The liquor that I procured from the cavity of the abdomen for examination, was partly coagulated in a few minutes by mere expoſure to the air. The coagulum, which was about one half of the whole, was not diſſolved, but corrugated, when hot water was poured upon it, and it was inſoluble in cold aqua ammon. pur. It muſt therefore have been the fibrine of the blood. That part of the liquor which remained fluid was not coagulable by a heat even greater than 160, at which temperature the ſerum of the blood coagulates, nor was it coagulable by alcohol, but it was ſo by Goulard's extract. This therefore was the *seroſity* of the blood, containing no albumen; and the dropſical water, in this caſe, was the blood deprived of its colouring particles, and its albumen.

The other child, which had leſs dyſpnœa, though conſiderable ſwelling of the abdomen, and general anaſarca, and likewiſe numerous petechiæ, gradually recovered by the uſe of the alkaline ſolution, the purging electuary, and latterly the tincture of digitalis. Care was taken to ſupport her ſtrength by a nouriſhing diet and Port wine during the operation of theſe medicines. It is right to obſerve that this family had fared very hardly during laſt winter, and had juſt begun to experience the benefits of this year's abundant harveſt. The family from whom theſe children took the diſeaſe, loſt one child from the ſame dropſical ſymptoms accompanied with petechiæ, and a ſecond was ſaved after theſe ſymptoms had appeared, by the uſe (if I am rightly informed,) of briſk cathartics and tincture of digitalis.

The poor of this pariſh, where the late ſcarcity has been very particularly felt, have ſuffered conſiderably from typhus fever, which has been often fatal, and I think more frequently than uſual, attended with petechiæ.

If the above obſervations are thought worthy of being communicated to the public, they are much at your ſervice.

I am, &c.

F. SKRIMSHIRE.

Kettering, Northamptonshire,
October 8, 1801.

To the Editors of the Medical and Physical Journal.

A PROPOSAL.

VACCINE Inoculation, discovered by Dr. Jenner, is the most fortunate invention for the benefit of mankind that ever was accomplished. The small-pox, for more than a thousand years, has destroyed a much greater proportion of the human race than any other pestilence or disease that ever existed. This improved method of inoculation, by its safety from danger, by its quality of preventing the casual small-pox, and of communicating the distemper by contact only, and not by miasms, is capable of preserving more lives and preventing more misery than any man, from either superior power, art, or knowledge, had ever before possessed. By practicable regulations to protect the unthinking multitude from the casual small-pox, this loathsome and mortal distemper might soon be exterminated from the British islands, and from all civilized nations.

With an ardour and energy highly honourable to England, and to the medical character, this happy discovery, in less than three years, has been communicated to every enlightened people, even the remotest in the world.

The inventor of this most salutary art ought to receive a public reward, both as a token of its great importance and of British gratitude. To the latest posterity it will be regarded as a national honour. To neglect or delay so just a remuneration would be a public disgrace.

Should not a memorial, signed by the physicians, surgeons, and apothecaries of such towns as approved the measure, be presented to Parliament, humbly to request that such a reward as in their wisdom may be thought proper, may be bestowed upon Dr. Jenner for his highly meritorious services? Would not such a petition come most properly and honourably from the medical faculty? Would it not receive their general approbation and signature? Would not such testimony have great influence both to obtain the reward, and to increase the practice of Vaccination?

Bath, Sept. 27, 1801. I. H.

This Hint is suggested by a person who is not personally known to Dr. Jenner.

To

To Dr. BRADLEY.

DEAR SIR,

A CASE related by Mr. Clutterbuck, in the 30th No. of the Phyfical Journal, which proved fatal after the Vaccine Inoculation, induces me to fend you an account of a cafe with fimilar fymptoms, which occurred in my practice. In January laft I inoculated the child of Mr. E. Scot, who had been previoufly a remarkably healthy little girl, then five months old. The vefícle formed at the arm in five days after the inoculation, and the difeafe obferved its ufual progrefs of extreme mildnefs, till the 12th day, when the fore arm was affected with violent inflammation extending from the bend of the arm literally to the tops of the fingers. The puftule was on the decline. On the following day the inflammation, without abating on the fore-arm and hand, appeared above the puftule, and reached from thence over the fhoulder to the middle of the back. The glands under the arm were much fwelled, and the infant evidently fuffered confiderable pain. On the 16th day the inflammation fubfided on the fhoulder and back, leaving an effufion under the fkin of a dark colour. On the firft and fecond day of the inflammation I tried warm fomentations, which not being of the leaft fervice, I applied cloths dipped in aq. ammoniæ acetat. with apparent relief to the child, but without effecting any change in the fwellings. Mr. Ofborn, furgeon, was now called in, and recommended the application of leeches to the hand and arm, which were ftill occupied by the inflammation. Next day the rednefs difappeared, and the heat diminifhed, leaving the part ftill much fwelled. The inflammation now extended to the left fhoulder, and down the arm to the fingers, obferving the fame courfe as I have already defcribed on the right. In fome days the pudenda and thighs partook of the inflammation, which fucceffively appeared and difappeared feveral times on the arms. Leeches had been frequently applied, and once the blood flowed four hours from the bites of two of them, it being neceffary to ftop it by means of cauftic. In a fortnight from its firft appearance, the inflammation was entirely removed from every part of the body. The fever ftill, however, continued high, and the child was anafarcous from head to foot. The legs particularly were of a monftrous fize, and the water flowed from fome of the bites of the leeches, and fhe made very little urine in the day. To remove the anafarcous fwellings, I directed a weak folution of vegetable alkali, which in lefs than a week had the defired effect. She was, however, very weak

and emaciated, and a new ſymptom of a very dangerous nature now occurred. The mouth and throat were covered with aphthæ, ſo as nearly to obſtruct the paſſage, and to prevent the child from ſucking, which hitherto, even at the worſt period of her illneſs, ſhe had not ceaſed to do. By ſyringing the throat with wine and water and decoction of bark, and ſupporting the infant with wine whey and weak chicken broth, ſhe alſo got the better of this alarming ſymptom; and, after the burſting of two abſceſſes which had formed, one on each elbow, ſhe at length completely recovered, after two months of extreme anxiety to the parents, and of uncommon ſuffering to the child.

I have in this caſe detailed the practice as well as the ſucceſſion of ſymptoms, making no apology for the diſcordant nature of the medicines, in a complaint of which I was, till now, totally ignorant. From the ſtate of the pulſe, the great increaſe of heat in the ſyſtem, and all the ſymptoms taken together, I am diſpoſed to conſider this affection as highly inflammatory. I therefore infer, that the bleeding with leeches was very neceſſary, as it was undoubtedly the only practice which had any effect in removing the inflammation. Allowing this, however, I muſt confeſs, that the bleeding was puſhed too far; and previouſly to my having ſeen Mr. Clutterbuck's caſe, I attributed the general anaſarca to this cauſe, which was rather the effect of accident than deſign.

The caſes related by Mr. Maddock in your 24th Number, differ from Mr. Clutterbuck's, and that I have related, merely in the inflammation having commenced earlier, viz. about the time when the areola uſually forms about the inciſion, and extending from the inciſion; whereas, in the caſes I have related, as well as Mr. Clutterbuck's, the inflammation commenced beyond the inciſion, and the part occupied by the areola.

It would be of great advantage if gentlemen would publiſh the account of their practice, whether ſucceſsful or otherwiſe; as it is in this manner only that we can hope to arrive at the proper method of treating an affection, which, I am certain, is the only dangerous conſequence to be apprehended from Vaccine Inoculation. I hope this will be a ſufficient apology for occupying ſo much of your uſeful Journal with a ſingle caſe, the threatening aſpect of which, after Cow-pock Inoculation which I had practiſed on ſeveral hundreds without the leaſt danger, had occaſioned in me a mixture of ſurpriſe and uneaſineſs. I am,

Dear Sir, Yours, &c.

Cork, Sept. 23, 1801. JOHN M. BARRY.

To the Editors of the Medical and Physical Journal.

Gentlemen,

YOU will oblige me by inserting the following Cases of Catalepsy and Epilepsy in your very useful Journal.

I am, &c.

Charlotte Street, Fitzroy Square, October 5, 1801. F. BOUTTATZ.

I was requested to visit a girl, about nine years of age, who had been afflicted with violent periodical fits for the course of two years. According to the account I received from her parents, these fits were always preceded by a total stiffness in all her limbs, her eyes at the same time remaining fixed to one point, whilst she continued to stand in the very spot where the fit had first seized her, without moving either hand or foot. In the commencement of the disorder, the fits continued only a few minutes, but afterwards increased; every successive fit was stronger and more lasting. I must also observe, she would then drop down and instantly fall asleep.

About six months before I was consulted, additional symptoms were observed. The child now dropped to the ground, as soon as the stiffness went off, and was then seized with the most dreadful convulsions; tore all her clothes, and kicked most violently, whilst she foamed, sighed, screamed, and clenched her thumbs close within her hands. She had been seized with her last fit about the end of August, a fortnight before I saw her.

From this description the disease appeared to be catalepsy, attended with epilepsy. Upon examining the child, I found her pale and emaciated; her belly prodigiously inflated, her pulse low and irregular. The parents were in perfect health, and could not recollect a similar case ever occurring in their family; therefore, the disease could not be hereditary. The only ground upon which I could form any supposition as to the cause of these fits, was, the extreme poverty of her parents, who lived almost entirely upon potatoes.

I enquired whether they had never discovered in the child any symptoms of worms, or whether they had not already employed some other physician? Upon which I was told by the mother, that she had expended, for the recovery of her child, more than her circumstances could properly afford; but having after all, perceived not the least prospect of amendment, she had

had resolved to leave the disease entirely to Nature, and that she had never discovered the least appearance of worms. When I reflected upon all these symptoms, and particularly the inflated state of the abdomen, I resolved to administer the most gentle purgatives, being apprehensive of increasing the irritable state of the child's body, and therefore prescribed small doses of calomel, with a small quantity of rhubarb. When I visited my patient the day after she had taken the purgative, I found that it had brought away a quantity of slime, and was told by herself, that the medicine she had taken agreed extremely well with her. I then desired her parents to send for me as soon as her fits should return.

On the third day I ordered her to take fifteen grains of crem. tart. and the same quantity of magnesia, every day; this medicine was continued for five days, and produced easy stools. Having some suspicion that her disease was occasioned by worms, I prescribed semen santonici with honey. After continuing this medicine for four days, I ordered her to take a purge of calomel and jalap: The evacuations which ensued, confirmed my suspicion; a great number of living and dead ascarides, mixed with slime, being discharged; after which the child felt herself greatly relieved.

In the evening of Sept. 29, I was informed, however, that she had been again seized with a fit: I found her quite stiff, leaning against a chair, with her eyes immoveably fixed to one point. This state of total torpor lasted about fifteen minutes, when she suddenly dropped down, and fell into violent convulsions. She kicked the chair away, tore her clothes and hair, screamed, wept, and held her thumbs so firmly enclosed in her hands, that they could not be disengaged. This fit lasted longer than the first, and terminated in a profound sleep, from which the child awoke in a state of extreme fatigue, without having the least recollection of the situation in which she had been.

The parents assured me, that this had been the least violent fit which she had had within the last six months. Vague as the assertions of people of that class generally are, this information made me conclude still more confidently, that the child's disease was occasioned by nothing else but worms. I ordered the worm medicines to be continued, prescribing, at the same time, the vinous extract of absynthium, of which the patient took a wine glass full every morning; at the same time mild purgatives were occasionally administered. Towards the end of October the paroxysm returned, but, as I clearly observed, with less violence than the time before; the second, i. e. the epileptic fit, lasting only twenty minutes.

Her

Her convulſions likewiſe, were leſs violent, and her ſleep of ſhorter duration than heretofore. This inſpired me with the moſt ſanguine hope of being able to effect a radical cure.

Obſerving that the fits returned regularly once a month, I added, to the uſe of the calomel, the bark and limatura ferri, ordering, at the ſame time, the abovementioned extract of abſynthium to be continued It is neceſſary to obſerve here, that the age of the girl did not permit me to hope, that the commencement of the monthly evacuations might put an end to her diſeaſe.

Perceiving that the bark did not agree with my patient, as it produced too frequent ſtools, I added a ſmall quantity of opium. After ſhe had continued the uſe of theſe medicines eight days, I directed her to take a purgative, when a great quantity of aſcarides and ſlime were diſcharged by ſtool. I recommended exerciſe and gentle frictions of the abdomen: The belly became ſofter, and viſibly decreaſed. On the laſt day of October, one day later than uſual, the paroxyſm returned, but to my greateſt aſtoniſhment, was confined only to a fit of the catalepſy, no epileptical ſymptoms being perceived: This inſpired me with freſh hope of being able to reſtore the child entirely. I preſcribed bark and valerian, limatura martis, and orange peel, whilſt I made her continue the uſe of extract. abſinth. and had the ſatisfaction to perceive, that the child increaſed in ſtrength and health.

Theſe medicines were continued a whole month, and the 3d of December, about four days later than uſual, the child had again a cataleptic fit; but no ſigns of epilepſy appeared. On the 5th of the ſame month I preſcribed the uſual purgative, which carried off whole lumps of aſcarides, mixed with a great quantity of ſlime.

On the following day, ſhe again took the bark mixed with valerian, limatura martis, and ſemen ſantonici.

On January 10th, about eight days later than uſual, ſhe was again ſeized with a fit of catalepſy, which however laſted only five minutes. The ſhort duration of this paroxyſm gave me hopes of a ſpeedy termination of the diſeaſe. The laſt mentioned medicines were continued, and the catalepſy was at length totally ſubdued. In order to ſtimulate the parents to beſtow the moſt unremitted care and attention on the child, I obſerved to them, that, favorable as appearances might be, they muſt continue to give her every dietetic and medical aſſiſtance in their power for ſome time longer, as relapſes were extremely frequent in diſeaſes of that kind, and that thoſe relapſes in general proved incurable. This injunction produced the deſired effect; I continued to attend the patient for a few months longer,

longer, especially at the time when the periodical return of the disease might be expected. I then suffered her gradually to discontinue the use of the medicines, and, after four months, had the pleasure of seeing her completely cured.

I was consulted by a friend respecting a farmer's son, a youth about eighteen years old, of a robust constitution, but who for six months past had been frequently seized with epileptic fits. The parents of the young man, as is generally the case with common people, kept the disease of their son as secret as possible.

On examining him, I found his complexion very pale, and his belly uncommonly protuberant and hard. Although his strength had not been much impaired, yet he was indolent and unfit for any work. His fits were not periodical, but generally lasted very long. The farmer, being anxious for the recovery of his son's health, brought him to town, and put him entirely under my care.

I prescribed, in the first place, ipecac. and tart. emet. in order to clear the primæ viæ. The emetic operated several times, both upward and by stool. The next day I ordered him to take a purgative of jalap and calomel, that produced several evacuations, in which however there was not the least appearance of worms. Three days after, about ten o'clock at night, I was informed that he had been seized with a fit, which I perceived at first sight to be completely epileptical.

His convulsions were uncommonly violent, and I was informed by his friends that this fit was the most dreadful he had ever had. His mouth was covered with froth, whilst he kicked with the greatest vehemence his cloaths to pieces. The people under whose care he was, were firmly convinced that his life could not be saved, and sent for a clergyman in order to prepare him for his dissolution. But the patient paid not the least attention to the clergyman, for when he attempted to administer the sacrament, struck the cup out of his hand. I was obliged to be a passive spectator of this scene, as I could neither administer any assistance to the patient, nor prevail on the bystanders to leave him at rest.

The convulsions lasted an hour, the patient then fell into a doze, from which he awoke after a considerable time, extremely exhausted, and totally ignorant of what had happened to him. The next day he complained only of extreme weakness and faintness, and told me that he often felt a violent craving for food, attended with an itching in the nose. This led me strongly to suspect that his disease was occasioned by worms,

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for which reaſon I preſcribed ſem. ſant. with honey; ordering him to take every day as much as he could bear. After he had taken this medicine eight days, I gave him another purgative of jalap and calomel, and was aſtoniſhed, upon viſiting him the next day, to find that a whole pot full of aſcarides had been diſcharged. The patient informed me that he felt himſelf greatly relieved, and was now totally free from that heavineſs with which he had been oppreſſed. I made him continue his medicine, ordering him, at the ſame time, to drink every morning a glaſs of infus. abſynth. diluted with water. He now viſibly recovered his ſtrength, and his appetite encreaſed. After a week I preſcribed another purgative, which carried off a great quantity of aſcarides as well as a great deal of ſlime. I continued the medicine two months longer, which had been ſo ſucceſsfully applied, and not the leaſt trace of epilepſy was to be obſerved. The young man grew freſh, ruddy, ſtrong, and extremely lively.

To Dr. BRADLEY.

DEAR SIR,

WHENEVER a medicine, not very generally in uſe, is found to poſſeſs valuable properties, it becomes the duty of every practitioner, who has regard to the public welfare, to make known the reſult of his experiments, that the benefits reſulting from them may be extended as far as poſſible.

Mr. Kite, of Graveſend, has favoured the world with a very circumſtantial account of the medicinal effects of the reſin of the Acoroides reſinifera, (the yellow gum of Botany Bay) which is detailed in the fourth volume of the Memoirs of the Medical Society of London, Art. IV. p. 24.

Having, at the time the work was in the preſs, the care of correcting the ſheets, in my official capacity as Secretary to the Medical Society, which I then held, I had an opportunity of ſeeing the work long before it was made public; and juſt about the time that part of the volume was printing off,* a very diſtreſſing cholera morbus, ſimilar to the preſent epidemic complaint in the bowels, was prevalent. I made trial of the Botany Bay gum; in the very firſt inſtance I found it ſo ſucceſsful, that I immediately purchaſed four pounds of it, at

* July and Auguſt 1793.

Hopkins, Jackſon, and Manley's, Pater-Noſter Row, expecting it would conſiderably riſe in price, as ſoon as the publication of the volume ſhould make it known to the world.

I have been in the habit of diſpenſing it very liberally ever ſince in autumnal complaints of the inteſtines, and indeed in general, where I have found obſtinate diarrhœa, with tendency to dyſentery, either with adults or young children, to which latter, as it has no diſagreeable taſte, it is particularly applicable.

Within theſe two months I have had above an hundred caſes of the preſent epidemic complaint of the inteſtines; and having lately, and very opportunely, received a preſent of a quantity of this yellow gum, or reſin of Botany Bay, from my much reſpected and moſt valuable friend Captain William Kent, of his Majeſty's ſhip Buffalo, lately arrived from thence, (who collected it purpoſely for me, and for which I take this public opportunity of returning him my thanks) I have been enabled to uſe it very freely, and find both the reſin itſelf, and the tincture of it, eminently to anſwer the character given of it by Mr. Kite, Dr. Bengo, Mr. Harris of Graveſend, Mr. Thompſon of Rocheſter, and other gentlemen whoſe names appear in the memoir alluded to.

I am inclined to think this gum, or reſin, would conſtitute a valuable article of commerce, independently of its excellence as a medicinal drug, for the tincture I made of it, a highly ſaturated ſolution of the purer parts in rectified ſpirit, digeſted in the ſolar heat for three months, makes a very excellent and beautiful yellow lacquer, or varniſh, that reſiſts the power of hot water, and is not eaſily ſcraped off any piece of furniture that it is laid on.

The only impediment againſt the acquiſition of any knowledge as to how many uſes this gum might be applied, would be, that as ſoon as it ſhould become known that this article is good for ſomething, a heavy duty, equal almoſt to a prohibition, would be laid on its importation.

I have the honour to be, with much reſpect,

Dear Sir,

Your very humble ſervant,

Clerkenwell, Oct. 12, 1801. W. CHAMBERLAINE.

Copy of two Letters from William Darton, Bookseller, No. 55, Gracechurch Street.

Friend Chamberlaine,

Harraſſed by a pain in my face for nearly a month paſt, greatly fatigued by loſs of reſt in attending my buſineſs, and quite

quite debilitated by a dysentery, causing ten stools in twenty-four hours, I have an inclination to try the yellow gum from Botany Bay. Pray prepare me some, and a small aromatic opiate* at night, for I sleep very indifferently; and whether better or worse by the trial, thou mayest expect to receive my acknowledgements, and any pay required from

Thy friend,

7 mo. 18, 1793. W. DARTON.

P. S. I am so faint I can hardly write.

Three days afterwards I received the following.

W. Darton having found great and sudden relief from the pills, and knowing several of his friends now afflicted as he was, requests his friend Chamberlaine to send him some of the tincture of the gum, as mentioned in page 55 of Medical Memoirs. If that is now impracticable, a double portion of the pills, not quite so large as the last, will be acceptable. W. D. has quite lost the pain in the abdomen, though it had been very violent indeed; three pills relieved that, and the violence of the lax is abated.

Gracechurch Street, 7 mo. 23, 1793.

To the Editors of the Medical and Physical Journal.

Gentlemen,

I Shall be glad if you will give the following Communications a place in the next Number of your useful publication. To Mr. Jenkinson, late house surgeon to the Manchester Infirmary, an apology is due for the delay, his paper having been in my possession nearly two years. The second communication, which I have been favoured with by Mr. Boutflower, a very respectable surgeon of considerable experience in Salford, appears of peculiar importance, as it corroborates an idea suggested in my first paper on Opiate Frictions, where I endeavoured to shew the expediency of giving them a fair trial in Tetanus and Hydrophobia.† At length an instance of Tetanus has occurred, in which they have been made use of, apparently

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* I sent no opiate.

† See Medical and Physical Journal for July, 1799, p. 447—9.

with conſiderable advantage; and the event having proved favourable, it will probably be the means of inducing others to have recourſe to them in tetanic affections, (and I wiſh I could add, in caſes of hydrophobia) by which means alone, their efficacy or inefficacy can be fully and fairly appreciated. But I ſhall refrain at preſent from farther comments, as I am preparing a few obſervations on this ſubject, which, with your permiſſion, I purpoſe ſending to be inſerted in your valuable Journal. Allow me only to add, that the tincture of opium appears to be, in general, better adapted for external uſe than the powder; yet, I think particular caſes may occur, where the powder will be found preferable to the tincture; as, for inſtance, where it may be neceſſary to join an opiate with a portion of ung. hydrargyri, (a uſeful addition where mercury, introduced by in-unction, has a tendency to paſs off by the bowels, occaſioning pain, diarrhœa, &c.) beſides that the tincture does not unite ſo well with the ointment, the quantity generally uſed of the latter will not imbibe enough of the former to anſwer the intended purpoſe.

I remain, &c.

Mancheſter, Oct. 2, 1781. M. WARD.

CASE I. Communicated by Mr. JENKINSON.

" Betty Richards, ætat. 14, was admitted into the houſe on July 8, 1799, in a ſtate of great debility, ariſing from the ravages which a caries of the hip, aſſiſted by the miſconduct of her maſter, had made in her conſtitution. She had been troubled with diarrhœa for ſeveral weeks; and a few days after her admiſſion, a vomiting came on. Opiates, aſtringents, and aromatics were preſcribed, and adminiſtered in conjunction with a proper and nutritious diet and wine, without checking either the vomiting or looſeneſs; opium was likewiſe adminiſtered, clyſter-wiſe, in ſtarch mucilage, by which the looſeneſs, but not the vomiting, was reſtrained for a time, and for a time only.

" Three drachms of tincture of opium, and one of the linimentum ſaponis, were now ordered to be rubbed into the ſhins, night and morning; and all other medicines omitted. The firſt portion produced a good night, though ſhe had ſcarcely ſlept at all for the laſt week; and the vomiting diſappeared till towards morning, when the effects of the opium had ceaſed. The ſecond portion and every other, for ſeveral days, had the ſame effect as the firſt; but it was now found neceſſary to increaſe each portion of the tincture to half an ounce. By this plan the vomiting and diarrhœa were, the one effectually prevented

vented, and the other much leſſened, while food (which had, previouſly to its adoption, never remained with her for more than a few minutes) was both ſought for and retained.

" Her ſituation was ſuch as to preclude all expectation of recovery; but her life was certainly rendered more comfortable, and her exiſtence prolonged ſeveral days.

" JOHN JENKINSON."

Mancheſter Infirmary, Nov. 3, 1799.

Case II. Mr. Boutflower's Letter to Mr. Ward.

" Dear Sir,

" AS the following Caſe bears teſtimony to the good effects of the Opiate Frictions, recommended by you in the 5th number of the Medical Journal, I have much pleaſure in ſending you the particulars of it.

" John Mortice, ætat. 13, had the misfortune to be thrown under the wheel of a rope manufactory, by which the teguments and tendons of his left leg were much lacerated, and the tibia laid bare to a conſiderable extent. On being called to him immediately after the accident, I brought the edges of the wound together by means of the interrupted ſuture, and applied a bandage. The next day he was tolerably eaſy. On the 4th I removed the dreſſings, and was ſurpriſed to find the appearances not ſo favourable as I could have wiſhed; the lips of the wound had aſſumed a dark colour; there was a conſiderable tenſion and ſwelling of the limb, which rendered it neceſſary to remove the ligatures. A common poultice was now directed to be applied, and at my next viſit I had the ſatisfaction to find the ſore looking better; a ſeparation had begun to take place of the diſcoloured parts, the ſwelling was leſſened, and every thing indicated a favourable prognoſis. Theſe flattering appearances, however, did not continue long; in a day or two he complained of a ſtiffneſs and rigidity of the muſcles of the neck; he had pain when he attempted to ſwallow, and the new granulations of the wound had changed from a bright to a pale colour.

" From theſe ſymptoms, I did not heſitate to conſider the caſe as an approaching locked jaw; I therefore directed him to take a grain of opium every ſix hours; to be allowed as much wine as he could drink; and, at the ſuggeſtion of a friend, ſpirits of turpentine were applied to the wound, with a view of exciting inflammation. On the three following days he continued to grow worſe; his jaw was ſtiff, more cloſed, and would only admit the edge of a tea ſpoon: he could not raiſe

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his head from the pillow without affiftance; and when done negligently, gave him violent pain, and brought on convulfive motions of the whole body, of the kind termed Opifthotonos. He fweat profufely, and the opium he had taken procured him no fleep; his pulfe, during this time, was flower than natural; no inflammation had been excited in the wound from the application of the turpentine; indeed, a ftriking infenfibility was peculiarly manifeft, as he felt no pain when it was dreffed.

"I was now induced, from the fuccefs of fome trials you had made with opiate frictions, to try their effects in this cafe. Half an ounce of laudanum, combined with two drachms of oil and the yolk of an egg, was therefore directed to be divided into two equal portions, one of which was rubbed into the thighs night and morning. No internal medicine was given under this plan except two grains of opium at bed-time. For fome days the fymptoms continued with very little change or abatement; he kept his ground, at leaft, if he did not get much; the rigidity every where remained, and had extended to the injured leg. — On the 6th or 7th day (for I do not write from notes) after the application of the liniment, he was evidently better; had flept two or three hours in the night, which he had not done fince his firft attack; the jaws were ftrikingly more feparate, and I obferved on moving him on his fide to drefs his leg, it was done with much lefs difficulty than before. From this period his recovery was gradual, and he went on fo well from day to day, that I did not confider any thing neceffary for him except nourifhments; the application of the liniment was therefore difcontinued, and his recovery trufted to the opium, which he had regularly taken at bed-time. I had very foon reafon to repent of the alteration I had made, for my patient not only made little progrefs after the frictions were laid afide, but actually appeared to be growing worfe again; I was therefore obliged to give directions for them to be re-applied, which was done with manifeft advantage, till every fymptom of Tetanus had completely vanifhed.

I am, &c.

J. J. BOUTFLOWER."

Salford, Sept. 22, 1801.

Memoir

Memoir on the morbific Elongation of the Tongue out of the Mouth. By PIERRE LASSUS.

[Continued from p. 333—357 of our laſt.]

WE read in the Actes Litteraires de Suède,* that the Society of Medicine at Stockholm, aſſembled in 1695, to examine the diſeaſe of a girl ten years old, who, from her birth, was disfigured by the protruſion of the extremity of the tongue: this organ was two inches thick, and hung on the chin the length of four inches: the under jaw was depreſſed by the weight of this tumor; the inciſive, canine, and ſmall molar teeth were turned forwards. This girl could neither ſhut her mouth, ſpeak diſtinctly, or retain her ſaliva, which flowed out continually in very great quantity; deglutition was troubleſome. This examination made, the conſulters decided, that the protuberant extremity of the tongue ought to be cut off; and Hoffman, ſurgeon of Stockholm, took upon himſelf the operation: it was done in ſuch a manner as not to give a favourable idea of Swediſh ſurgery in the laſt century. † The ſuperfluous portion of the tongue being cut off, it was weighed, and found to weigh three ounces. The hæmorrhage, although not conſiderable, was ſtopt by the application of the actual cautery. It is ſaid that this girl was perfectly cured in about three weeks; ſhe could afterwards ſpeak freely, and ſwallow with facility; the inferior lip, which from her birth had been turned by the tongue upon her chin, reſumed its natural ſtate: In fine, the author of this obſervation terminates his relation by an addreſs to the Maſters of the Art, and inviting them to turn to the profit of ſcience this operation, or to correct it if poſſible.‡ We ſee in a moment, that there is a great deal to correct in this manner of proceeding, for the cure of the diſeaſe in queſtion. It is alſo without neceſſity that Claudini, phyſician, of Bologna, in ſpeaking of a girl who from her birth had the tongue out of the mouth, adviſed, to obtain a radical cure, the cutting off this organ.§ All the authors of whom we have juſt ſpoken, knew

* Acta Litteraria & Scientiarum Sueciæ, Anno 1732, tom. 3. p. 1.

† The tongue being fixed on a kind of wide and hollow ſpatula, the protuberant extremity of this organ was cut off with a chizel, very much like that which ſculptors and ſtone-cutters uſe. Ferrum idipſum ad inſtar Ferri quo utuntur Sculptores & Lapicidæ. (P. 3.)

‡ Veſtrum eſt artis ſalutaris Chirurgiæ Magiſtri nobile hoc inventum in veſtros uſus vertere, vel ſi poteritis, illud emendare. (Ibid. p. 3.)

§ Quòd ſi ſpectemus auctam linguæ magnitudinem plus juſtò, vel malum hoc

knew neither the nature or character of this disease, which is curable by the most simple means, even when it is inveterate. It is a fact that the tumor has not always the same volume, nor the same elongation. Those on whom this disease has existed for many years, have made this remark of it themselves; it has not escaped the greatest number of observers, but they knew not how to take advantage of the fact, or to seize the indication that this variable state of the affected part presented. The disease was never seen to be cured spontaneously; but the tongue has been seen, after being excessively protruded out of the mouth, to return partially into it, at least for some time, to detumify, and to render by this retrocession, more or less durable, the disease a little easier to be supported. It would be to deceive oneself to take the tumefaction of the tongue for the disease itself; that is, the effect of it, and not the cause. It may, to a certain point, be an obstacle to the reduction of the part, but it is so easy to diminish its size, to obtain its reduction afterwards, that it is astonishing that the most learned persons of the art have deceived themselves on this head. The inspection of the disease sufficiently indicates that for its cure the tumefied and elongated extremity of the tongue ought not to be cut off, but that the detumescence ought first to be effected, and then the reduction. This will be proved by the following observations: A few years since I was consulted for a child, about seven or eight days old, that constantly held the point of its tongue out of the mouth about the length of a finger's breadth. The fear that this vicious affection, which manifested itself immediately after birth, and which insensibly increased, might become still more considerable, had determined the parents to take my advice; the child was in other respects very well, but seized the nurse's breast with difficulty. I examined the tongue with attention; it was scarcely thicker or wider than in its natural state, it had no defect in original conformation, and it was easy for me to remit it into its natural place, which it immediately left as soon as I ceased to support it there. Instructed by this examination, I conceived the possibility of opposing, at the same time, the progress of the disease, and even of radically curing it, in supporting the tongue when reduced, and by opposing its exit; therefore I reduced it a second time, after having stimulated its point with a little crude alum in powder, and I applied under

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hoc est nativum quale ego vidi in puella quæ linguam exertam gestabat, cui ea sensim etiam a primordio sui ortus fuit adaucta, lingua plus justo aucta incidatur. (Julii Cæsaris Claudini Empirica rationalis. Boloniæ, 1653, in fol. lib. iii. cap. 6. p. 603.)

der the chin a narrow and longitudinal comprefs, in the fhape of a fling, the ends of which I fixed on the top of the head, fo as to keep the jaws exactly clofed; I recommended that the child fhould no longer fuck, but to nourifh it with a mixture of cow's milk and barley water, to be taken by a fpoon, to the end that the tongue, by this contrivance, might excite, at leaft during deglutition, an inverfe action to that it performed in fuction, when the child fucked its nurfe. The parents took care not to move the apparatus which I had applied, but when it was neceffary to give the child drink, and to re-apply it immediately afterwards. This method, fo fimple and fo natural, fufficed to produce, in the fpace of fifteen days, a radical cure, and to permit the child afterwards to refume, without inconvenience, its nurfe's breaft. Curious to know what might be the caufe of this morbific difpofition of the tongue, I learnt from the midwife that the child came into the world by a face prefentation, with its face very red, the mouth open, and full of froth; that an abundant falivation appeared in the beginning, and that the accouchement had been long and difficult. From all thefe details it appeared to me plain that the protrufion of the tongue, which fhewed itfelf immediately after birth, was the confequence of a convulfive ftate, or of a kind of fuffocation, very like to that which fome epileptic perfons experience, who during the fit have the tongue exceedingly elongated out of the mouth. A little while after, I was confulted for a little boy, fix years old, who had a voluminous tongue, and out of the mouth about the length of three fingers breadth. This deformity had fubfifted more than three years. The parents, not knowing the caufe of it, attributed it to a bad habit which the child had contracted. However, the tongue was too much tumefied to be reduced and maintained in its natural place. The indication to be followed appeared to be, firft, to effect the detumefcence of the organ by the application of leeches. In fact, this local bleeding diminifhed its fize, and afterwards facilitated its replacement in the mouth. To keep it there, I caufed the jaws to be brought one againft the other by the application of a bandage under the chin, which was attached to the child's cap on the top of the head; I recommended this bandage to be kept on night and day, and only to be removed at meal times. By conftantly keeping the jaws together, to prevent the exit of the tongue, it gradually regained its natural fize, and in the fpace of a month the child was perfectly cured of its deformity. The incifive and canine teeth of the lower jaw were thrown forwards, as we have feen in the preceding obfervations; the inferior part of the tongue was flightly ulcerated by rubbing

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against the teeth, whilst its superior part was absolutely dried up by continual exposure to the air. The effusion of saliva was not considerable, deglutition pretty easy, but speech thick, and the sound of the voice harsh. During the first eight days of the treatment, I perceived that the child could keep the tongue very well in the mouth, but that it came out immediately he opened it and spoke. I recommended silence; and saw clearly, that it was to the constant proximity of the jaws that the cure of this disease was to be attributed.

G. BELLAMY.

To the Editors of the Medical and Physical Journal.

GENTLEMEN,

IN Number XXXII. of your useful Journal, I addressed you on the importance of publishing in some respectable almanack, a correct list of all the medical practitioners in the kingdom. I am happy to see that it has had some effect, and hope that every person whose interest it concerns, will cheerfully come forward and support the cause. It is with no small degree of pleasure I observed that the Editors of the British Almanack, published in Edinburgh and Glasgow, have taken up the subject, and printed in a number of newspapers, the following advertisement.

"To the Physicians and Surgeons in Scotland.

"The Publishers of the British Almanack, at the request of several gentlemen of the Faculty, propose to publish in their almanack for 1802, a list of all the practising Physicians and Surgeons in Scotland, who have obtained regular Degrees and Diplomas. It is therefore requested, that those concerned will furnish them with their names, place of residence, the date of their degree or diploma, and the faculty from which it was obtained.

"Letters may be addressed to Alexander Chapman and Co. printers, Forrester's Wynd, Edinburgh. None will be attended to, unless post paid."

The publishers of the British Almanack have thought it unnecessary to require of every practitioner a formal certificate of his *Degree* or *Diploma*, trusting that one practitioner will be a check upon another; and should any have the temerity to impose upon them, and be detected, their names shall be exposed in

n the moſt public manner, to prevent the like fraud in others They ſhall be held forth as QUACKS and IMPOSTORS to the whole world. I am, &c.

Scotland, Oct. 12, 1801. PHILO-MEDICUS.

P. S. Your Journal is now ſo *univerſally* read, that there is ſcarcely a practitioner in Scotland without a copy of it; I have therefore choſen this method of making the advertiſement *univerſally* known.

On the Odours which are exhaled by living Animals. By J. J. VIREY.

[Concluded from p. 346, of our laſt.]

THE inſupportable ſtench which is emitted by ſome animals belonging to the family of genets, ſeems to be of the ſame kind as the former, (caſtoreum,) but only exalted and mixed with the hydroſulphureous ſmell, and that of other hydrogenous gaſes. It ſerves thoſe animals for the purpoſe of preventing their enemies purſuing them. The *Viverra naſua*, (1.) *Screb. Viverra vulpevula*, *L.* (2.) *V. putorius*, *L.* (3.) (polecat,) *V. mephitis*, *L.* (4.) and ſeveral others are known to caſt that offenſive ſmell, and likewiſe the glutton, (5.) the polecat, (*Muſtela putorius*, *L.*) and the fox, &c. emit their bad odours againſt the dogs that purſue them. On the death of the animal theſe odours are conſiderably diminiſhed, becauſe they ceaſe to be ſecreted; they adhere however ſo ſtrictly to any ſubſtance which is impregnated by them, that it is very difficult to deprive it of the ſmell entirely by waſhing; for which purpoſe, therefore, KUHN adviſes to put it under ground for twenty-four hours. The hyæna, *Canis hyæna*, *L.* the *Canis*

(1.) SCHREBER Saeugthiere (Mammalia,) tom. iii. p. 436. MARCGRAF Hiſtor. Braſiliæ, p. 228.

(2.) YZQUIEPATT of Hernandez Hiſt. Nat. Mexic. p. 332; and likewiſe the Viverra quasje, SEBA Muſ. Theſaur. tom. i. p. 66, 68.

(3.) *Polecat* of CATESBY, Nat. Hiſt. of Carolina, tom. ii. p. 62. KALM Amer. tom. ii. p. 378.

(4.) PENNANT's Synopſis of Quadrupeds, p. 233, no. 167. BUFFON, l. c. xiii. p. 294.

(5.) SCHOEFFER Hiſtoria Lappon. p. 339. GUNNER Act. Nidroſ. tom. iii. p. 123, tab. 3, fig. 7. GENBERG Act. Stockholm, 1773, p. 222, tab. 7.

crocuta, *L.* (1.) and the *Canis corsac*, ſpread alſo a very diſagreeable odour, which however ſeems to be peculiar to the whole family of Mammalia, and of carnivorous birds, and their breath is ſo bad in general, that is has been ſaid to produce pulmonary conſumption in people which inſpire it, eſpecially that of the cat.

The ſtrong odour of the bats, and even of the owls, comes very near to that of the former animals, but it has ſomething nauſeous in it, which has been obſerved to occaſion ſyncope in ſeveral perſons. The ſmell of ſeveral ſerpents is very analogous to it; and, according to KALM, the cauſe of that pretended faſcination by which they are ſuppoſed to attract or rather ſtupify the little animals, depends on that vapour, by which they are, as it were, ſuffocated. It is alſo known that the odour of the *Aplysia depilans*, *L.* (2.) or lepus marinus of the ancients, is very diſagreeable and nauſeous.

Amongſt the birds, the family of the *coraces* exhibits a peculiar ſmell, and amongſt the vultures, the *Vultur jota* of Molina, (3.) is particularly remarkable for its odour, which is like to excrements; and JACQUIN ſays, that this bird frequently caſts up ſtuff of a ſtill more fetid ſmell. In general, the odours of the greateſt part of carnivorous animals ſeem to be owing to the putrid animal matters on which they feed.

All animals of ſweet water, as well as of the ſea, are endued with a peculiar odour, which is eaſily diſtinguiſhed from all others, particularly in the rutting ſeaſon, but it evolves itſelf ſtill more when they begin to be expoſed to putrefaction; the fetid ſmell of the ſtinking orach, *Chenopodium vulvaria*, *L.* has a great analogy to the former odour, which is particularly ſtrong in the carnivorous fiſhes. It has been thought that this fetid ſmell has its ſeat only in the ſkin of thoſe animals, but it appears to me that their fat is not free from it, beſides the rancid odour which is frequently perceived in it at the ſame time.

Rancidity, which is a ſeparation of ſebacic acid and phoſphoriſed or carboniſed hydrogen gas in oily ſubſtances, particularly thoſe of marine animals, has a great influence on the odours of thoſe animals that live upon them, ſuch as the ſea birds, and the ichthyophagous nations which inhabit the ſhores of the nothern ſeas. Theſe men, and eſpecially theſe birds, as the *Colymbi*

(1.) LUDOLF Hiſt. Æthiopiæ, lib. i. c. 10. ERXLEBAN Mamm. Hiſt. p. 578.

(2.) BOHADSH de Lernea, tom. iii. p. 51. RONDELET de Piſcibus, tom. i. p. 519.

(3.) Hiſtor. Natur. de Chili, p. 235.

Colymbi of LINNÆUS, the penguins, gulls, the pelecani, &c. and all thofe which are in general comprifed under the name of *Anseres*, have a very rancid flefh, which difagreeable tafte is even communicated to their eggs; it is likewife found in thofe turtles that feed on animal matters, as the Teftudo caretta, *(the hawks-bill turtle,)* (1.) &c.

The immenfe tribe of infects, prefents feveral fpecies which fpread very fetid exhalations, fuch as the *Staphylini*, *Carabi*, *Sylphæ*, *Coccinellæ*, *&c.* all which emit a very ftinking liquor, when they are caught, and likewife the caterpillar of *Bombix lossus*, Fabric.

The *Hemerobius perla*, *L.* impregnates every thing which it touches with the fmell of excrements; the fmell of the *Reduvius acanthiæ*, and of many other fpecies of bugs, is alfo very offenfive, and is likewife found in that umbelliferous plant which furnifhes the coriander feed. The *Scarabæi*, *Spheridiæ*, &c. fmell of the putrid matters in which they live.

All odours, whether good or bad, which are exhaled by animals with red blood and vertebræ, derive for the moft part their origin from a ftratum of glands, fituated in almoft all the mammalia, (2.) and in the reptiles, (3.) about the anus, and on the rump, (coccyx) of birds. In fome quadrupeds, however, they are placed near the organs of generation, with which they feem, according to GMELIN's opinion, (4.) to be all connected; in the human fpecie they exift likewife near that place, under the form of miliary glands. The fmelling vapours fecreted by thofe glands, appear moft probably to be intended by Nature, for attracting the two fexes to the act of generation, becaufe they are particularly evolved in the rutting feafon, and begin to diminifh confiderably when this ftate of orgafm has ceafed; very odorous animals therefore have been found to be particularly hot in love. In fome animals however, the odours have the function of defending them againft their enemies. The exhalations in the family of reptiles are of a particular kind, being not only very difagreeable and alliaceous, as thofe of the toad and falamander, which come near to the fmell of *assafœtida*, but alfo fometimes fo much concentrated, that they have been fuppofed to caufe death, a circumftance which is related by MARTIN DELRIO, in his Magic Difquifitions of the Vapour of irritated and angry Toads and Vipers.

(1.) BROWN's Hiftory of Jamaica, p. 465, no. 3.

(2.) DUVERNEY Oeuvres Pofthumes, tom. ii. p. 559.

(3.) CHARAS de la Vipere, tab. ii. TYSON Philofoph. Tranfact. no. 144. SEVERINUS de Viperibus, p. 236.

(4.) Nov. Comment. Acad. Petropol. tom. iv. p. 399.

pers. (1.) The exhalations of the *Lacerta geoko*, (2.) and *L. Geitje* (3.) are dangerous, even the touching these animals is thought to produce violent inflammations and excoriations.

Although I have endeavoured to multiply the classes of animal odours as much as possible, yet there are some odours which it is impossible to refer to any of them, and I never could unite the smell of *ambergris*, *assafœtida*, and musk, with that of opium and of bugs, as has been done by LORRY. (4.) The celebrated LINNÆUS has divided the different odours of medicines into the following classes: 1. *Aromatici.* 2. *Fragrantes*; 3. *Ambrosiaci*; 4. *Alliacei*; 5. *Hircini*; 6. *Tetri*; 7. *Nauseosi*; (5.) a division which appears to be satisfactory with respect to the vegetable kingdom, of which it is made; but the great HALLER very justly remarks, that a great number of animal as well as chemical exhalations, cannot yet exactly be ranked after a certain order, (6.) such as the resinous odours of elemi, &c. the farinaceous which are perceived in some mushrooms, the odours of several species of *Geranium*, *Aristolochia*, *Iris*, *Diosma*, *Herculia*, *Galium*, *Asperula*, of green figs, the grasses and orchideæ, the jalappa, the bituminous exhalation of a *Psoralea*, the odour of some papilionaceous flowers, the aromatic scent of coffee and of roasted corn, the strong smell of *Myrica gale* and *Ledum palustre*, the sweet exhalations of Alpine plants, the smell of fucusses, and many others which we cannot exactly determine. The kinds of odours vary so much in general in the vegetable as well as animal creation, that it is a vain attempt to reduce them all to six or seven classes. This variety of odours even extends itself to the human species, the different nations of which seem to exhale an odour which is peculiar to them. It is known that the negroes of certain countries in Africa, such as the Jotofs, exhale a fetid odour when they are hot, similar to that of porret. The Samoiedes, Esquimaux, and other northern nations have a peculiar smell, which however, seems to depend on their nourishment, which mostly consists of half rotten animal food. (7.) It

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(1.) BOERHAAVE Prælection. Instit. tom. iv. p. 77.

(2.) HOUTTUYN Acta Vlissing. tom. ix. p. 322. LAURENT Amphib. p. 44, no. 57. HASSELQUIST's Tour to Palest. p. 306.

(3.) ANDREW SPARRMANN Act. Gothenburg. vol. i. p. 75.

(4.) Memoires de la Société de Medicine, extract. by HALLE, vol. v. 1785, p. 307, 308.

(5.) Amoenitates Academicæ, vol. iii. art. 38, by Wahlin, 1752, (ed. Schreber.)

(6.) Elementa Physiologia, lib. xiv. sect. ii. § 5, p. 162, vol. v.

(7.) KLINGSTÆDTT Memoires sur les Samoiedes, p. 36. CORNEILLE

It is likewiſe known, that the ſouthern Europeans frequently ſpread an alliaceous odour, becauſe they are accuſtomed to eat the bulbs and roots of this family of vegetables. Perſons that live on nothing but vegetables, have a ſweat that ſmells acid, which is alſo the caſe of little infants. People with red hair exhale a very ſtrong odour, particularly ariſing from the arm-pits. (1.) The exhalations of perſons of a dark complexion, and of thoſe who are very hairy, are rather alkaline, and ſome-what analogous to the ſtrong ſcented breath of carnivorous quadrupeds; of this kind are the mongolic ſpecies of men, and thoſe of bilious conſtitutions, as it is commonly called. The ingenious BORDEU however remarks, that it may be conſidered on the whole as a proof of vigour and force, particularly in the genital ſyſtem.

The accurate examination of the different odours may prove very uſeful for explaining ſeveral phenomena of the diſeaſed ſtate of the human body, a ſubject which has been already ſucceſsfully treated by *Bordeu* and *Brieude*. (2.) Several diſeaſes exhibit peculiar odours, ſuch as the acid and diſagreeable odour of ſome miliary fevers, (3.) the inſupportable ſtench that we perceive in the jail fever, (4.) and in the bubo peſtilentialis. (5.) It is known, that odours have been employed ſince the moſt remote ages as medicines, a practice attributed by AETIUS (6.) to CRITON, a phyſician much older than GALEN, and uſed alſo by later phyſicians, as John Bravus. (7.) JOHN VICTOR CONRAD SCHNEIDER mentions this ſubject in his excellent treatiſe *De osse eribriformi.* Modern phyſicians have likewiſe paid a particular attention to it, (8.) as of late Mr. ALIBERT.

Although the hiſtory of Democritus, who lived during three days on the vapour of hot bread, and the *olfactive aliments* of Hippocrates,

NEILLE DE BRUYN, Voyage II. vol. i. Voyages au Nord, vol. ii. PAW Recherches Philoſophiques ſur les Americains, vol. i. p. 218. O. FABRICIUS Fauna Groenlandie, claſs i. ANDERSON's Iſland, vol. i. Egéde Hiſtor. Grœnland. I. ſect. 2. ERIC. PONTOPPIDAN's Hiſtory of Norway, part ii. OLAUS MAGNUS Degentibus Septents. lib. iv. PENNANT's Tour to the Hebrides, vol. ii. ANSON's Voyages, &c.

(1.) LORRY Morbi Cutanei, ſect. ii.

(2.) Analyſe Medic. du Sang, &c.—BRIEUDE Memoires Societ. Med. Year 1789, p. 45, &c.

(3.) GRAINGER de Febr. Batav. p. 33.

(4.) PRINGLE's Diſeaſes of the Army, p. 310.

(5.) SYDENHAM Oper. p. 174.—Lieutaud Precis de Medicine, p. 147.

(6.) Tetrabibl. ii. ſerm. iv. c. 7.

(7.) De Sapor. et Odorum Differentiis, Cauſis et Effectibus. Salamanticæ, 1513, 4to.

(8.) AUGUSTIN CIGARINI Novæ de Odoribus Theoriae Trutina. Senis, 1749, in 4to.—J. CORVIN de Organſens, et Objecto Olfactus, Prag. 1749, in 4to. &c.

Hippocrates, are ſufficiently known, yet it is difficult to believe that theſe exhalations ſhould immediately act on the organs of nutrition; there is, however, no doubt of the exhalations of certain medicines having occaſioned purging in ſome people, a fact which is proved by experience: The nauſeous odours frequently produce vomiting, all which ſhows a ſtrict ſympathy betwixt the ſtomach and inteſtines, and the ſenſe of ſmelling. It ſerves, therefore, to animals in the choice of their food, and ſeems to be formed, and, as it were, adapted to the nutrition of each reſpective animal, none of which can be without that ſenſe, ſo powerful in animal œconomy.

With regard to the medical uſe of odours, it has been obſerved, that they are particularly efficacious and ſerviceable in all nervous affections; the fetid animal exhalations, for inſtance, in epileptic paroxyſms; the ammoniacal ones in lipothymies, &c. But in order to enquire into the particular utility of odours in medicine, it is neceſſary to divide them into claſſes, which poſſeſs very different properties. In general it may be obſerved, that the agreeable odours are not ſo dangerous as the nauſeous ones.(1.)

The fragrant and ſomewhat narcotic odours of ſpring flowers are very uſeful in aſſuaging the too irritable conſtitution; whereas, the nauſeous odours never agree with them. The aromatic ſmells are tonic and excitant, and likewiſe the muſky, which are particularly aphrodiſiacal; they exhauſt, however, by degrees, the excitability, and produce a kind of ſtupor, and conſiderable debility. Very volatile and odorous remedies have been obſerved to do harm to ſcorbutic, as well as hypochondriacal perſons, whoſe ſmell is in general, very ſenſible, and delicate.

Camphorated exhalations frequently produce head-achs, particularly to nervous women. Odours are ſaid to diminiſh the vital power, (2.) but ſometimes they produce a kind of drunkenneſs, which I ſaw in a young lady, accompanied with a ſlight delirium.

It ſeems that the nauſeous odours exhale a great deal of carbonic acid, whereas the more volatile odours diſcharge in general hydrogen gas, impregnated with a certain quantity of volatile oil, which is different in each ſpecies of the above exhalations.

There ſeems to be a difference in the ſcents of the different nations, becauſe the ſtrong narcotic odours are better liked by the

(1.) Linne Philos. Botan. p. 285.
(2.) Lorry Mem. Soc. de Medic.

the ſouthern nations, and the ethereal exhalations are more eſteemed by northern people; it has even been obſerved, that ſome nations have no perception for a certain odour, when, on the other ſide, their ſmell is extremely delicate for a different exhalation. Thus, the people of Kamſkatcha did not ſmell the ſcent of *aqua melissæ spirituosa*, but they diſcovered at a great diſtance, by the ſenſe of ſmell, a rotten fiſh, or a ſtranded whale. (1.) The power of ſmelling depends, in a great meaſure, on habit and cuſtom; and the men who live in ſocial life, are more affected by vegetable odours, while the ſavage ſmells better the putrid and fetid exhalations of animal bodies. (2.)

In general, each animal ſeems to emit a peculiar exhalation, which is more or leſs ſtrong in ſingle individuals, according to their reſpective character and temper. There is, however, a great analogy of odours in ſome families, orders, or claſſes of animals, ſo that it requires conſiderable practice to diſtinguiſh the difference.

To the Editors of the Medical and Phyſical Journal.

GENTLEMEN,

IT is but a few days ſince I ſaw in your Journal for May, 1801, a letter from Mr. T. R. Reid; to which, as it contains a very peculiar attack on myſelf, I hope you will permit me to reply.

When it is known that Mr. Reid *was, if he is not still*, the accredited agent for the ſale of Mr. Mann's artificial leg in London and its vicinity, the *insidious affectation of candour that glares through his letter may not meet with all the credit he would wish*; however this may be, I ſhall fairly and openly diſcuſs the queſtion he ſeems deſirous to agitate.

I was miſtaken when I aſſerted, that "till the appearance of my invention, no artificial leg had been produced, in which the perſon uſing it was not obliged to make a ſemi-circular motion in walking." I take no ſhame to myſelf in making this confeſſion, becauſe, when I did make the aſſertion, I ſpoke truth, according to the beſt of my knowledge. I had ſeen no ſuch invention, I had not heard of any; my own misfortune alone

(1.) Second Voyage of Captain Cook, Vol. IV.

(2.) VIREY Eſſai d'Hiſtoire Naturelle et Phyſiolog. ſur la Perfectibilité de l'Homme. Paris, in 8vo.

ſtimulated me to exert my own ingenuity, and produce that which I have now offered to the public; it has been ſeen and approved by many gentlemen of profeſſional eminence, and this it is which has really excited the fears of Mr. Reid; not for himſelf, indeed, but with the feelings of a faithful ſteward, for the intereſts of his employer.

Under the pretence of correcting *my miſtake* he introduces a long extract from Mr. Mann's Deſcription of his Patent Leg, which is producing Mr. M's ipſe dixit for the merit of his own invention; this is followed by a commendatory certificate from ſeveral profeſſional gentlemen, and concludes with Mr. Reid's, the *agent*, aſſertion, that Mr. Mann, his principal, FIRST diſcovered and introduced to public notice, an inſtrument ſo capable of relieving one of the greateſt calamities incident to humanity.

If this is not the puff direct for his employer, *artfully introduced under the pretence of correcting my miſtake*, I have greatly miſunderſtood it; upon this ſubject, however, I ſhall only remark that Mr. Reid has himſelf committed the very *miſtake* which he writes to correct in me, viz. he aſſerts that Mr. Mann FIRST diſcovered an inſtrument ſo capable of alleviating one of the greateſt calamities incident to humanity.

That the date of Mr. Mann's invention was prior to mine I know, I know too that others were made before the date of his, that poſſeſſed the ſame property of bending without obliging the wearer to make the ſemi-circular motion in walking. I do not ſay they were *like* mine or Mr. Mann's, nor ſhall I enquire whether they were equal or inferior to either of ours, but I ſimply acknowledge my conviction that ſuch things were, conſequently both Mr. Reid and I were miſtaken; I, when I aſſerted that *I was the first*; he, when he ſaid *Mr. Mann was the first who invented an instrument possessing such properties.*

I am, &c. I. POTTS.

P. S. Will you allow me to add a letter that I have received from a gentleman whoſe ſituation gives him ample means of knowing the fact he relates, and who can have no intereſt in writing as he does, unleſs it is to ſerve the cauſe of truth; it will place this matter in its proper point of view.

To Mr. POTTS.

Sir,

WHEN I examined your leg in the preſence of Mr. Lynn, I did not, from motives of delicacy, attempt to aſcertain the principles

principles upon which it was conſtructed; I confined myſelf to obſerve the manner in which you uſed it, and what actions you could perform with it. In conſequence of that examination, I declared my opinion that it was the moſt perfect, with reſpect to the power of imitating the natural actions of a leg in actual uſe, that I had yet ſeen; and now that I do know the principles on which it is conſtructed, I repeat my opinion with this addition, that with reſpect to the action of its joints, on which its utility chiefly depends, it is leſs likely to go out of order than any other that has been made public; in ſaying this, I make *no exception*, as I know the principles upon which every thing of this kind is conſtructed, that has for many years been offered to public notice.

In the Medical Journal I perceive that you have fallen into an error, by ſaying "it is known, that where amputation has been performed above the knee, any artificial leg which has yet been invented to ſupply the loſs, is very imperfect, as the perſon uſing it, is obliged to make a ſemi-circular motion with it in walking, &c."

This is not true. Some years ago, a Mr. Mann, who you have not perhaps heard of, invented a knee joint which certainly is not liable to that inconvenience, and at the ſame time is totally different from yours; ſeveral years before the date of his invention, things poſſeſſing ſimilar properties were made by a perſon ſtill alive here, and I know of others of ſtill older date, ſome of them as long ago as the time of my grandfather, and all of them as different from his, as his is from yours. The truth is, that when men direct their ingenuity to ſubjects on which they have not previouſly collected information, they are prone to believe that what has not been done *to their knowledge, has not been done at all*; this ſeems to have been your caſe, and I adviſe you to correct the miſtake the firſt opportunity, or you will afford ſome one an opportunity to accuſe you publicly of ſaying what is not true.

Let me adviſe you at the ſame time to avoid engaging in any public diſpute on the ſubject; your invention has merit enough to bear a compariſon with any other that is intended for the ſame purpoſes; but that compariſon ſhould be made by others, not by yourſelf: the malignity of any one who might fear that your diſcovery would diminiſh the value of his, might induce him to engage you in a diſpute from *which you could gain no advantage*, though he might hope it would be ſerviceable to him; and the impudence, the vulgarity, perhaps the want of principle in ſome of thoſe who may become your opponents, might induce them not only to load you with abuſe, but to

extend it to gentlemen * who recommend you for no other reaſon, but becauſe they think you deſerve it.

You are at liberty to print this if you think it will ſerve you; the facts it relates are within my own knowledge: but if you ſhould uſe it as an inſtrument of controverſy with any perſon whatever, I will take no notice of any remarks that may be made on it. I am, &c.

No. 50, *Strand, March* 5, 1801. T. SHELDRAKE.

To the Editors of the Medical and Phyſical Journal.

Gentlemen,

It is to be lamented that the Science of Medicine ſhould ever be diſgraced by arrogant pretenders, or by thoſe who, having diſcoved any ſalutary mode of treating diſeaſes, withhold it from the world from baſe, narrow, and ungenerous motives. The man poſſeſſed of any important diſcovery may do good to the perhaps contracted circle in which he practiſes, while the reſt of mankind are denied thoſe benefits. It would be unreaſonable to think, that after his aſſiduity, perplexity, and anxious enquiry in attaining ſuch a deſideratum, he ſhould receive no reward. The ſtruggles of genius ought always to meet with an ample compenſation, and every exertion for the general good duly appreciated.

Cancerous affections are truly dreadful, when proper remedies have not been applied in due time; they have baffled every exertion of medicine and of ſurgery, the patient lingering in torment for a length of years. Being in the neighbourhood of Rocheſter, I was induced to ſee a gentleman (Mr. Knight, of Friendſbury) who had a cancer on his right cheek. The tumour is very large, and has rendered the right eye nearly blind, extending to below the jaw, and from the noſe to the ear. The dreſſings being removed, the tumour was of a florid red, and a quantity of blood oozed from it. The

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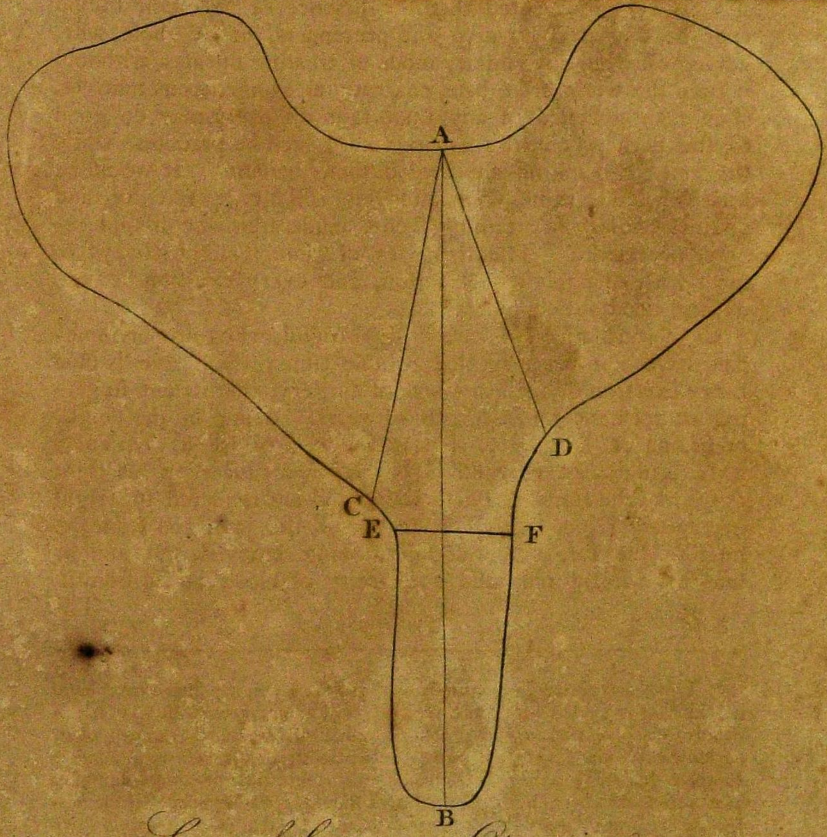
* This ſeems to have been prophetic, for Mr. Lynn has ſhewn me a letter in which he is treated with much ſcurrility and abuſe, becauſe he has recommended my invention to notice, and not that of the writer; among other curious obſervations he ſays, his leg is ſo perfect, that *a man may dance a hornpipe gracefully with it.* I diſclaim all competition or compariſon with any perſon whatever; but if I did not, I ſhould certainly acknowledge myſelf vanquiſhed by one who can make a wooden leg that may be *danced with gracefully.* I. P.

Cancer on the Cheek.



Case of Cæsarean Operation Vide Page 346, N° 31.

The hiſtory of the caſe is ſhort: For four years it remained a ſmall hard ſpeck, about the ſize of a pea, till ſix months ago, when it daily increaſed. The practitioner who then attended him, almoſt choaking him with medicines to no good effect, at length ventured to uſe the knife. What was his intention, or what was then cut away, I could not learn; but it appears from that time the growth of the tumour was greatly accelerated. The apothecary who now attends him, equally deſtitute of the talents and diſcrimination requiſite to form the able ſurgeon, preſcribes with unparalelled preſumption and effrontery, in a caſe, the treatment of which he is totally ignorant of. It is unfortunate that ſuch ſhocking diſeaſes ſhould fall within the practice of ſuch incompetent individuals, who are allowed to ſport with the health of their fellow creatures. Mr. Knight, I believe, is between fifty and ſixty years of age; he is in much pain; the tumour ſeems not to have eroded the inſide of his mouth, as he feels no diſagreeable taſte, which he muſt have done had it been ſo, from the acrimony and fetor of the diſcharge. He gets little reſt, and has terrifying dreams. Humanity, and a conſciouſneſs of the caſe being at preſent injudiciouſly treated, were the only motives for my ſubmitting this paper to the judgement of your correſpondents, who may probably ſuggeſt ſome means of alleviating his miſery. I have ſubjoined a correct drawing *(see the plate)* of the ſize and appearance of the tumour. The ſmall cancerous ſpot on his left cheek has been there two years.

I am, &c.
JAMES ATKINSON.

No. 8, Duncan Terrace, Iſlington.

Observations on the Membranes. *By* Cit. BICHAT.

THE membranes may be divided into two claſſes, the ſimple and compound membranes the firſt of which are endued; with a peculiar organization, and the latter conſiſts of two or three ſimple membranes. The firſt claſs has three ſpecies, viz.

1. *Mucous membranes*, ſecerning mucus by ſmall glands, and covering the inner ſurface of all hollow organs that communicate with the ſurface of the body; of this kind are the membranes of the noſe, the mouth, œſophagus, urinary bladder, uterus, and of all excretory canals.

2. *Serous membranes*, exhaling a lymphatic liquor from the blood, ſuch as the pericardium, pleura, peritonæum, the membranæ

branæ vaginales, the membrana arachnoidea, the membranes of the joints, and the vagina tendinum.

3. *Fibrous membranes*, confifting of fibres like the tendines, but fecerning nothing, the periofteum, dura meninx, fclerotica, aponeurofes, &c. belong to them.

From thefe three fpecies of membranes are compofed the *fibro-serous*, the *sero-mucous*, and the *fibro-mucous* membranes, befides which there are fome others of an unknown or peculiar organization, and, laft, the membranes formed by difeafes.

All mucous membranes may be confidered as parts extended on two general furfaces, the firft of which begins in the mouth, the nofe, and the eye; the mucous membrane covers the cavity of the mouth and the nofe, whence it is continued in the excretory canals of the glands of the ears and cheeks; and having formed the conjunctiva, it goes down to the puncta lacrymalia, the faccus lacrymalis, and the canalis nafalis; from hence it continues to the cavities of the nofe, and flips down the throat, and having given a part to the tuba Euftachii, with which it penetrates into the internal ear, it proceeds to the windpipe and its branches, to the œfophagus and ftomach, where it is propagated to the duodenum, and having left two proceffus, one for the ductus coledochus and hepatica, and another for the canal of the pancreas, it terminates in the anus, where it paffes over to the fkin.

The fecond expanfion of the membrana mucofa begins in the urethra of the male fex, whence it partly proceeds to the bladder, the ureteres, the kidnies, and their particles and canals, partly continues in the excretory canals of the proftata, the ductus ejaculatorii, the veficula feminalis, the vas deferens, &c. In the female fex it commences in the vulva, and penetrates partly to the urinary ways like as in men, partly it goes up to the vagina, the uterus, and tubes, at the opening of which it gets in contact with the peritonæum.

The mucous membranes differ in their internal organization from the fibrous and ferous ones, by confifting of feveral lamellulæ, fimilar to thofe of which the fkin is compofed, viz. the *epidermis*, the *corpus papillare*, and the *corium*.

The epidermis may be feparated by hot water from the other lamellulæ on the tongue, the palate, and the throat; but deeper down it is very difficult to fhow it, as Mr. B. never fucceeded in feparating it from the inner membrane of the ftomach and inteftines. It has, like the common epidermis, a tendency of becoming callous by preffure. Mr. B. was not able to difcover a *rete mucosum* under it, as in the common epidermis,

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The corpus papillare of the mucous membranes is eaſily to be diſtinguiſhed, particularly at their origin, though it appears leſs evident deeper downwards; the membrana flocculoſa however ſeems to be nothing but this corpus papillare, which chiefly conſiſts of nerves, to which it owes its ſenſibility. The corium of the mucous membranes conſiſts of ſeveral ſtrata of condenſated tela celluloſa; it is ſtrong in the palate, tongue, and noſe, but of a finer texture in the ſtomach and inteſtines, and almoſt not to be perceived in the urinary bladder, and the veſicula fellea. The mucous membranes are endued with a great quantity of mucous glands, ſituated either in the corium or under it; and likewiſe with many ſuperficial veſſels, on account of which it is expoſed to frequent hæmorrhagies. The ſtructure of theſe membranes differs according to the regions in which they are found, and, by the ſame reaſon, they differ alſo in the degree of irritability which they enjoy; whereas the ſerous membranes have every where the ſame appearance and degree of irritability.

With regard to the diſeaſes of the mucous membranes, the following queſtions may be propoſed for being farther diſcuſſed. Why do theſe membranes never grow together, when they are inflamed, which always happens to the ſerous membranes? Why does the ſecretion increaſe in inflamed mucous membranes, while the ſerous membranes become almoſt perfectly dry in a ſimilar ſtate? Why do polypi, which are never obſerved but in mucous membranes, moſtly appear at the origin of theſe membranes, and in the neighbourhood of the ſkin?

The ſerous membranes cover outwardly the greateſt part of thoſe organs which have mucous membranes inwardly, and are particularly obſerved in parts expoſed to ſtrong motion and friction. They alſo ſurround all organs neceſſary for life, as the brain, the heart, the lungs, all the inteſtines, the teſticles, &c. They are not combined with each other, but ſingle, and their extent taken together is greater than that of the mucous membranes and of the ſkin.

The ſerous membranes are of two kinds; to the firſt of which, the pleura, pericardium, peritonæum, the membrana arachnoidea, and the tunica vaginalis belong; the ſecond comprifes the capſulæ of the vaginæ tendinum, otherwiſe called burſæ mucoſae, or capſulæ ſynoviales, and the ſynovial membranes. The liquors ſecerned by both kinds of membranes, differ in ſome reſpects. Dropſies do not ſo frequently occur in the ſynovial membranes at the ſame time with ſimilar affections of the membranes in great cavities.

The external ſurface of the ſerous membranes adheres every where to the neighbouring parts, which combination with their

reſpective

respective organs differs from that of the fibrous membranes, the latter being so intimately connected with the organs by vessels, that the part to which they adhere dies when they are taken away; for instance, a bone when deprived of its periostium. The serous membranes however, are, as it were, heterogeneous parts to the organs, to which they adhere, and their life is independent of the life of the organs which are surrounded by them. The serous membranes are of a white and somewhat glossy colour, of different thickness, and transparent, and consist only of one stratum of tela cellulosa, upon which blisters have not the least effect, as Mr. B. frequently observed, on applying them to the naked intestines. As they chiefly consist of absorbent vessels, they may be considered as great reservoirs, situated in the middle between the absorbing and exhaling system, into which the lympha runs over from one system, and in which it undergoes some changes before it is imbibed by the other system. Blood vessels seem not to be essential to these membranes. Respecting the diseases to which the serous membranes are exposed, Mr. B. proposes the following queries:— Why are the upper membranes, the pleura, the pericardium, but particularly the arachnoidea, more rarely affected by dropsies than the lower ones, as the peritonæum, tunica vaginalis, testiculi, &c.? And why do the synovial membranes not share in dropsical affections with the tela cellulosa and other serous membranes? In what relation are the purulent and viscous exsudations in inflamed serous membranes with the increased secretion in the mucous membranes, which generally takes place at the same time, &c.?

The fibrous membranes are observed to cover several organs, as the bones, the eyes, the testicles, the penis, and the kidneys, and we find them also in the interstices of muscles, about the joints, &c. They seem to be all united with the periostium, except the perichondrium of the cartilages of the larynx, the tunica albuginea, and the membrane of the kidneys. It constitutes a character of these membranes, that they never form any plaits, but are exactly adapted to the form and size of the parts which they surround, except the dura meninx.

The fibrous membranes may be comprehended under two classes; to the first of which belong, 1. The aponeuroses, either serving as covers to the organs or for insertion. 2. The fibrous capsulæ of the joints. 3. The fibrous vaginæ of the tendines. To the second classes, the periostium, the dura meninx, the sclerotica albuginea, &c. may be reckoned. The membranes of this class differ from those of the other, by being immediately united to the organs which they cover, whereas the first seem

ſeem to be heterogenous to the parts with which they are combined, poſſeſſing an independent organization and life.

The organiſation of the fibrous membranes is every where the ſame, as they only conſiſt of one lamina, with exception of the dura mater, which has two plates, where it forms its cavities. The chief organic element of the fibrous membranes is a peculiar, ſolid, elaſtic, inſenſible fibre, of little contractility, which cannot be diſſolved into tela celluloſa by maceration. Of this fibre the tendons and ligaments are likewiſe formed, which only differ from the fibrous membranes by the fibres of thoſe parts being collected in parallel bundles, now and then croſſing one another, whereas they are formed here by a reticular texture. Theſe membranes are every where penetrated by blood veſſels, which conſtitute an eſſential point of their organiſation.

By theſe ſimple membranes uniting, three kinds of compound membranes are formed.

1. *The fibro-serous membranes* ariſing from the union of the fibrous and ſerous membranes, which naturally have a great tendency of uniting with each other. This is particularly the caſe, 1, with the *arachnoidea*, being intimately connected with the internal ſurface of the dura meninx; 2, with the *albuginea*, which receives a lamina from the membrana vaginalis; 3, with the greateſt part of the pericardium, that is inſide of a ſerous, outſide of a fibrous texture; 4, with all the *synovial membranes*, which partly unite with the capſulæ articulares, partly with the ſheaths of the tendons. In general, this compoſition of membranes will be only met with where the organs are not expoſed to conſiderable changes in their ſize, and it would by no means be adapted for parts whoſe ſize is changeable, as, for inſtance, the ſtomach, urinary bladder, uterus, &c.

2. *The sero-mucous membranes.* There are very few inſtances of ſuch a combination in animal organization, at leaſt both membranes ſeldom come in immediate contact with each other, where they are united for the formation of any organ, being moſtly (for example in the inteſtinal canal) ſeparated by a ſtratum of muſcular fibres. The loweſt part of the veſica fellea, however, is an inſtance of their immediate combination; but it is not ſo intimate, that they might not be conſidered as ſeparate membranes.

3. *The fibro-mucous membranes* are met with, 1. In the *ureters* ariſing from the membrane of the kidneys and the mucous membrane of the urinary bladder. 2. In the *vas deferens*. 3. In the *membranous part* of the *urethra*. 4. *The membrana nasalis* is alſo moſt probably compoſed of perioſtium and of a mucous membrane. 5. In the internal coverings of the *ear*, and in the *tubæ Fallopii*, a ſimilar union of both membranes moſt likely takes

takes place, which is always fo intimate, as not by any means to be feparated.

Befides the above membranes, we find fome which are either of a particular ftructure, or have not yet been exactly examined, and therefore cannot well be ranked among the former, namely, the *membrana intermedia* of the arteries, the *membrana interna* of the veffels, the membrane which covers the infide of the cylindrical bones, the *iris* and *choroidea*, the *retina* and *pia mater* or *meninx*.

Mr. *Bichat* calls abnormous or irregular membranes, thofe of which the bags of the Hydrops faccatus or cyfticus, Hydatides, Steatomata, Atheromata, &c. and the cicatrix are formed. The bags which arife in thofe difeafes are of a ferous texture, and feem not merely to be owing to an extenfion and compreffion of the tela cellulofa.

The fynovial membranes exhale a liquor, called fynovia, which is in many refpects fimilar to that fecreted by the ferous membranes, with which they have indeed a great analogy in their internal organization, as they likewife confift of tela cellulofa.

To the Editors of the Medical and Phyfical Journal.

Gentlemen,

Arthritic affections have long been denominated the *opprobria medicorum*; nor have medical practitioners difcovered much folicitude to acquit the healing art of fuch a degrading charge of incompetency. In no inftance of difeafe has prejudice more arbitrarily ufurped the empire of reafon than in the treatment of gout. The crude notion fuggefted by the humoural pathology of the ancients, that every diftemper characterifed by cuticular determination fhould be confidered as originating from fome morbid condition of the fluids, requiring fpecific expulfion from the fyftem, led alfo to the conclufion that gout was to be fimilarly rejected; hence the routine practice of foftering arthritic inflammation by the topical ufe of increafed temperature, and the internal employ of ftimulant medicines, with a view to obviate its retroceffion, and to enfure its final extinction on the part affected. This procedure has invariably appeared to me to be repugnant to the indication of relief furnifhed by every conftitutional and local feature of the difeafe. Obfervation and reflection have forced on my conviction

conviction the *fact*, that however loofe the analogy might be between the refpective proximate caufes of ordinary phlegmonous and arthritic inflammations, the refemblance is fufficiently clofe in the degree of concomitant temperature. In *both*, the vafcular actions of the fyftem, and of the part affected, generate a morbid excefs of heat, alike referable to diftempered conditions of motive power. Impreffed then with the perfuafion that with regard both to inordinate temperature, and to its general as well as topical manifeftation, a radical fimilitude fubfifts between thefe *nominally* different inflammations, it appeared to me ftrictly warrantable to inftitute a perfectly fimilar plan of cure; the event has fully verified its probable utility, as will be evinced in the detail of the fubfequent cafes.

A young man about twenty-five years of age, of an healthy temperament, and without any known hereditary predifpofition to arthritic affection, had been, during three or four preceding years, attacked at leaft once, fometimes twice, in the courfe of twelve months, with a fevere fit of the gout; it ufually affected the great toe of one foot only, occafionally alfo both knees, and one or more of the finger joints. On thefe feveral parts were permanent inflammation and tumefaction, arthritically characterifed by the ufual fhining afpect, and exquifite fenfibility to either touch or motion; morbidly affociated irritation alfo arofe in different parts of the fyftem, but did not become fo concentrated as to be either durable or ferioufly violent.

The medical advice given the patient on thefe occafions by different practitioners, was to confider the complaint as a violent degree of gout, to cover the affected parts with flannel, to fuftain the powers of life by the occafional ufe of ftimulants, and refignedly to await the ordinary folution of the difeafe. This not lefs hackneyed than pernicious admonition had been repeatedly complied with, at the expence of feveral months painful durance, and the confequent lofs of much conftitutional ftrength. In the attack preceding the laft, after feveral weeks confinement, and the injurious effects of high temperature, my advice was defired; the ligaments of the great toe joints, of one foot, of both knees, and the wrift of one hand, were at that time much inflamed, thickened, and fwollen, extremely painful on the flighteft preffure, or effort at motion; morbid fympathetic irritation had alfo pervaded the fyftem, and been more or lefs permanently arrefted and evolved in relative fymptoms, on the brain, ftomach, and bowels; conftitutional atony had likewife advanced to an alarming height, and diftempered irritability prevailed in a threatening degree.

Under thefe feveral unfavourable circumftances, no time was

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to be loſt; much miſchief had already been incurred by awaiting a natural termination of the diſeaſe.

The local inflammation and irritation appearing to be the chief ſources of the evil, it ſeemed highly expedient to ſubdue what in my eſtimation conſtitutes the efficient cauſe of theſe active ſymptoms, *namely, excessive temperature*; this can only be indirectly accompliſhed by reduced heat, and no vehicle is ſo ſuitable to effectuate it as cold water.

In oppoſition then to every prejudice, equal parts of cold water and acetated water of ammonia, (aqua ammoniæ acetata*) were directed to be conſtantly applied to the affected parts by means of cloths wetted in that fluid, renewing them every half-hour, or even at ſhorter intervals if any ſenſe of morbid heat ſooner returned. With this external remedy was combined the internal exhibition of camphorated tincture of opium (tinctura opii camphorata) and the ammoniated tincture of guaiacum (tinctura guaiaci ammoniata) in doſes of two drachms each, repeated every eight hours. The relief obtained from the topical application of cold to the parts affected was immediate. The efloreſcence, ſwelling, and ſtiffneſs were ſo far diminiſhed within twelve hours, as to admit of moderate preſſure, and even voluntary motion of the affected joints with but little inconvenience. The co-operative influence of the internal medicine ſeemed to calm the agitated ſtate of the ſyſtem, and to diſpoſe to ſleep; but it manifeſtly, at the commencement, had no ſenſible effect on the local irritation, for, on the third and fourth days, if (as ſometimes happened) the application of the cold mixture was not duly purſued, though the medicine was regularly exhibited, a painful ſenſe of heat and renovated tenſion promptly recurred.

After five days proſecution of this treatment, four diſtinct ſources of local irritation were annulled; the ſyſtem became recruited, and pervaded by an equal diſtribution of improving vital energy; the appetite returned, digeſtion amended, and the nights were no longer ſleepleſs. This convaleſcent procedure happily terminated in the courſe of one month in the full reinſtatement of health.

After an interval of nine months perfect freedom from every ſymptom of arthritic affection, this patient ſuffered a renewed attack;

* My motive for conjoining the acetated water of ammonia (aqua ammoniæ acetata) with common water, was not with a view to any diſcutient quality which might be ſuppoſed to reſult from the mixture, but merely to avoid exciting any dread in the Apothecary who furniſhed it, againſt the employ of cold water *alone*, which would probably have proved an impediment to its due application.

attack; the ſame parts were preponderately affected with gouty irritation, as in the former inſtance, but with additional violence. It had prevailed upwards of a fortnight before my advice was taken, during which period the ordinary medicinal treatment in theſe caſes (and which has been already mentioned) was employed, and with the ſame unavailing effect and deleterious conſequence. The diſorder became hourly exaſperated; every ſymptom, particularly thoſe of exceſſive temperature and exquiſite ſenſibility, had been much exacerbated, and ligamentous thickening and inaction had induced abſolute inability to move the affected joints without aſſiſtance.

The experience of the paſt had been too unequivocally demonſtrative of the beneficial influence ariſing from the topical application of reduced temperature, not to be again reſorted to. The plan of treatment before recited, was renewed, and with preciſely ſimilar effects. In the courſe of three days, the topical employ of the cold fluid had ſo diminiſhed the local ſwelling and irritation, as to unfetter the confined joints, and to reſtore the power of tolerable loco-motion. The medicine before employed was alſo reſumed, with the evident advantage of calming the irregular action of the ſyſtem by equalizing the circulation of the vaſcular fluids, and thereby reinſtating the cuticular and every other diſturbed ſecretion. In the courſe of three weeks, convaleſcence was ſo far advanced, as to leave nothing more to complete the cure, than the reſtoration of natural tone to the debilitated conſtitution. At this time, now upwards of two months from the date of the attack, this final benefit has been fully accompliſhed by the conjoint aid of bark, exerciſe, and a well-regulated courſe of nutritive diet.

The moſt ſceptical muſt admit, that the highly ſalutary effects of diminiſhed temperature, in this caſe, are beyond all controverſy. In both inſtances, the neglect of it had permitted the diſeaſe to go to an unpromiſing length; neither natural effort, nor ſuperadded aſſiſtance, ſeemed competent to effect the change neceſſary to ſubdue the inflammatory and decompoſing proceſs of arthritic irritation. Morbid afflux of fluids on the affected ligaments, had cauſed the generation of new veſſels, which were, in turn, engaged in carrying on diſeaſed ſecretion and accretion. Reduced temperature abſtracted this diſtempered action; and by thus depriving the diſordered parts of nutritive ſupply, expoſed them to be ſpontaneouſly decompoſed, and borne away by exhalant impulſe and lymphatic tranſmiſſion.*

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* The phraſe *lymphatic transmission,* is here ſubſtituted for the ordinary term *absorption,* it being my opinion that the lymphatic veſſels do not in any inſtance

The value of the evidence afforded by this caſe, is alſo much enhanced by its embracing two inſtances, in which the curative influence of reduced heat in arthritic malady was equally ſtrongly marked. Had the iſſue, however, been ſomewhat different, it might have been owing to that perpetual and inſcrutable diverſity in temperamental ſuſceptibility, which perplexes and defeats every endeavour at diſcovering any thing like uniformity in the effect of agents on the animal œconomy; but the exactneſs of the co-incidence appears to warrant the important concluſion, that reduced temperature is capable of ſuch an abſolute degree of efficiency, as cannot be either reſiſted or modified by *slight* organic diſſimilarity.

The ſecond ſubject of topical refrigeration under my direction in arthritic affection, was that of a woman aged forty, of an healthy temperament, who had been grievouſly tortured upwards of four months with gouty irritation inveterately ſtationed on the articular ligaments of both ankles, one knee, and both wriſts; neither of the toes was affected, nor had the patient prior to this time experienced any ſimilar complaint, yet the peculiarly gloſſy tumefaction, efflorеſcence, and exquiſite ſenſibility of the affected parts were eminently characteriſtic of arthritic diſeaſe. Subordinate degrees of irritation occaſionally wandered over the ſyſtem, with the ſeeming effect of affording temporary alleviation to the more fixed pain, but without exonerating the diſeaſed ligaments of their cumbrous inflammatory load; indeed, the relief appeared to conſiſt rather in ſomewhat diverting the attention from the accuſtomed ſource of grievance, than in its real diminution.

This patient had unſucceſsfully tried the probable modes of aſſiſtance which reputable medical advice, during ſeveral months, could afford; at length, wearied and diſcouraged by the fruitleſs effect of every endeavour, and having been informed of the benefit which had been rendered under my direction to the patient whoſe two caſes have been juſt ſtated, my opinion was deſired on her ſituation. It appeared to me, at firſt ſight, to be ſo clearly a caſe of morbid temperature habitually fixed by long ſtanding, and bearing ſo cloſe an analogy to the preceding caſes, that a ſimilar treatment was inſtituted for her relief, with particular attention to the improvement of her digeſtion, which indeed had been ſo much impaired as to have greatly curtailed the due alimentary reſources of vital ſuſtenance.

The topical application of cloths wetted in the cold mixture before

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inſtance *actively absorb*, but *passively admit* the redundant, exhalant, interſtitial, or extravaſated fluids forced into their *permanently open orifices* by arterial and muſcular impulſe.

before mentioned, afforded ſpeedy benefit, and its frequent renewal ſoon reſtored motive power to the ſtiffened and diſabled joints. With the ſubſidence of the ſwellings, ceaſed alſo the morbid irritation that had reduced the natural energy of the ſyſtem to a wretched ſtate of atony; hence the powers of life were no longer ſquandered in diſeaſed motions, but recruited by the renewal of healthy action. Three weeks procedure in this mode of reſiſting local irritation by topically allaying redundant heat, had effected unexpected changes; at the end of one month a meſſage from the patient deſired that ſomething ſtrengthening might be directed, obſerving that the ſwellings and pain were wholly removed; that the diſabled joints had regained the power of voluntary motion, and that a retrieval of ſtrength ſeemed to be alone wanting to complete the cure; ſince that time, now upwards of two months, no intelligence has reached me concerning the patient, which induces me to preſume on at leaſt a *ſatisfactory*, if not a *perfect* recovery.

This caſe affords an inſtructive inſtance, that whatever may be the degree of prevailing debility, the exiſtence of morbid exceſs of temperance, whether local in the character of inflammatory affection, or general in the ſhape of febrile irritation, might be ſafely combated with rapid and perſevering reduction. The debility here preſent was inceſſantly advancing by the inordinate ſtimulant effect of the attendant irritation, and would have ſoon gone to the extent of fatal exhauſtion, had it not been obviated by the appeaſing and regenerating influence of diminiſhed heat.

The fourth caſe of this deſcription which you are requeſted to indulge me in citing, is that of a young man much addicted to intemperate drinking, who had been formerly ſubject, at irregular intervals, to gouty affection on the great toe of one foot only. In the laſt attack my advice was taken on account of an efflореſcent diſcolouration diffuſed over the whole foot. This additional appearance to the uſual more confined aſpect of gout, had induced much alarm for the imaginary conſequences. The arthritic inflammation originated on the ſecond joint of the great toe, was productive of inſufferable pain, and conſequently of ſevere ſymptoms of ſyſtematic irritation.

My former experience of the ſalutary effects of reduced temperature emboldened me to confide the welfare of this patient to its ſalutary influence. He was ſupplied with a pint bottle of cold water, (coloured for the purpoſe of diſguiſe) in which he was directed to moiſten a folded cloth, and to envelope with it the whole foot, renewing it as ſoon as the ſenſe of imparted coldneſs was overcome by that of returning heat; this was on an average about once in half an hour. The relief obtained

was

was immediate; in a few hours the affected joint could be voluntarily moved; by the following day the cuticular redneſs over the foot aſſumed a ſlightly livid hue, the tumefaction alſo diminiſhed, and in the courſe of one week the patient walked about with tolerable convenience. No medicine was directed, and abſtinence only from immoderate indulgence in ſpirituous and fermented liquors was enjoined. A tight bandage, commencing at the affected toe, and ſpirally continued over the foot and ankle to the knee, reſtored in a few weeks the accuſtomed tone to the enfeebled extremity; thus the ſtrict *podagral* character of arthritic affection was arreſted in its progreſs, and ſalutarily terminated with unprecedented rapidity by the aid of diminiſhed heat.

This caſe preſents an example of unmingled gout ſafely and expeditiouſly ſubdued by the ſole external uſe of cold water. Not the ſmalleſt unfavourable ſymptom aroſe in the train of its removal; on the contrary, the ſyſtematic irritation which appeared to have been excited and ſuſtained ſolely by the local pain, ended with the ceſſation of its cauſe; and every relic of morbid feeling, whether from habitual or atonic influence, ſpeedily yielded to the renovated conditions of perfect health.

My obſervation of the benefit reſulting from the topical application of reduced heat in arthritic inflammation, has yet been limited to the four preceding caſes. Some, indeed, who have been veterans in the diſorder, and who, from having been prejudiced with the popular notion that its periodical return and due local ſupport were eſſentially neceſſary to health, could not be prevailed on to apply cold water, have yet, on my recommendation, ſo far relaxed from employing high temperature as to diſrobe the affected parts of flannel, and expoſe them to the ordinary heat of the atmoſphere; the conſequence of this partial compliance has been ſuch relief as to induce a perſeverance in the too reſtricted remedy.

From what has been related, it appears allowable to infer, that high temperature, whether the cauſe or effect of the morbid conditions of vital power which proximately conſtitute gout, is ſafely and ſpeedily controulable by the ſimple application of cold water; that the prevailing opinion relative to the critical nature of that diſeaſe on the extremities is liable to much diſtruſt; that the local depoſit is not, as commonly ſuppoſed, a particular preponderance and detention of the conſtitutional diſorder, but that it originates in the parts themſelves, and is thence diſtributed by aſſociated influence over the ſyſtem; that the longer the local affection endures, the greater probability there will be of morbid ſympathies being generated and eſtabliſhed

bliſhed on the vital organs, which may terminate in rapid and painful death.

If theſe inferences be admitted, the ſalutary effects of early and inceſſant low temperature, recited in the preceding caſes, will be eaſily explicable; and it will follow that the true indication of cure in arthritic inflammation will conſiſt in transferring, by cold media, the redundant heat of the part affected.

It may be demanded, if this refrigerant mode of topically abſtracting the ſtimulus of heat is ſo efficacious, would not a general antiphlogiſtic plan, as it is termed, powerfully cooperate in ſubduing the morbid ſtate of the affected parts? My obſervation enables me to anſwer this queſtion by affirming, that ſuch collateral aid is not neceſſary, without warranting me in ſaying it would be pernicious; but it is rational to expect that it would have hurtful tendency by adding to the prevailing ſyſtematic debility, and thereby incurring the inſeparable danger attendant on extreme weakneſs, and irritability.

The ſalutary influence of topical cold on inflamed ſurfaces does not depend on debilitating motive power, but in removing that immoderate excitement which always deranges and threatens, by progreſſive exhauſtion, the ultimate extinction of life; thus the tonic and invigorating effect of affuſion with cold water in febrile affections, and of immerſion in various chronic diſeaſes, may be explained.

The moſt ſummary mode, perhaps, of reſtoring ſtrength in highly enfeebled and irritable ſtates of vital motion, is to abſtract all unneceſſary, and particularly *painful* excitement. The occaſional excluſion of light, avoidance of ſound, undue heat, redundant aliment, inteſtinal conſtipation, and mental anxiety, will often be found conjointly to promote the regeneration of more ſyſtematic energy in default of that power, than the beſt managed employ of medicinal ſtimulants.

I am, &c.
ROBERT KINGLAKE.

Chilton super Poldon,
Oct. 12, 1801.

To the EDITORS of the MEDICAL and PHYSICAL JOURNAL.

A QUESTION.

Dr. Kinglake begs to know of Dr. Bouttatz, (through the medium of the Medical and Phyſical Journal) whether or not the patient who underwent the exciſion of the very extraordinary tumour pendant from the eye, as detailed in the laſt

 number

number of the Journal,* recovered in any degree the power of viſion? In Dr. K's opinion the want of this information detracts too much both from the phyſiological and pathological value of the caſe either not to be felt by the numerous readers of Dr. Bouttatz highly intereſting narrative, or not to inſure Dr. K. an admiſſible apology for requeſting Dr. Bouttatz to ſupply what muſt have been an *accidental*, though an important omiſſion.

Chilton super Poldon, Oct. 12, 1801.

Herholdt's Observations on Respiration.

MR. HERHOLDT, a very able ſurgeon at Copenhagen, has lately publiſhed an intereſting work on the Surgical Treatment of deep Wounds of the Breaſt, from the phyſiological part of which we communicate the following obſervations.

It has been aſſerted by ſome Naturaliſts, that the fetus, during its ſtay in the uterus, inhales the liquor amnii, by which it is ſurrounded; an opinion which ſeems to be founded on the following phenomena. — 1. The fetus has been obſerved to move the breaſt and belly in the liquor amnii, like a perſon breathing. 2. The chicken in the egg ſeems to draw in the white or albumen, and even to chirp, a few days before it breaks the ſhell.

In oppoſition to this opinion, Mr. H. has made ſeveral experiments and obſervations, by which it appears ill founded. He put ſome puppies, before they had begun breathing, into a veſſel full of milk, in which he ſaw them continue the above-mentioned motions of the breaſt till they died; but on opening them, he did not find them to have drawn in a ſingle drop of the milk It is ſtill farther improbable that the cauſe why the chicken chirps in the egg ſhould be aſcribed to the undulated motions of the albumen, as has been pretended; for as long as its beak is ſurrounded with albumen, it has not the power of emitting any ſound. In the laſt days of incubation, however, when the chicken is increaſing, a conſiderable air bladder forms itſelf at the broad end of the egg, which the chicken generally perforates with its beak ſome time before it breaks the ſhell; from which circumſtance it appears, that the air contained in that

* Vide No. XXXII. p. 289.

that bladder has penetrated into the lungs of the animal before the chirping found is perceived. In order to afcertain this, Mr. H. made the following experiment: He befmeared fome eggs, in which the chickens had been chirping, with oil, and placed them in warm milk till the animals died. On opening them, he always found that the beak had penetrated the membrane of the air bladder, and the lungs were fo porous and light as to fwim on the furface of water. Another argument againft that opinion may be taken from fome monfters in the animal creation, which, though without a head, nofe, or mouth, continued to live and to grow in the uterus of the mother. Mr. PORTAL found the windpipe and its ramifications in three full grown fetuffes to be filled with a thick gelatine, which had moft probably occafioned their death. Now, how could this gelatine have been accumulated in the trachea, or refted there, fo long as to receive that degree of toughnefs, if the liquor amnii did pafs and repafs the lungs like the air in animals that have come into the world? Or why was it only in the trachea, and not in the very fubftance of the lungs? All which phenomena feem to prove how much the above opinion recedes from truth and experience.

The caufe of beginning refpiration is generally thought to originate in the firft impreffion of the air on the rima glottidis, though it has not yet been afcertained whether the atmofphere merely acts here as an incitement, or by yielding a particle, through means of which the diaphragm is enabled to contract itfelf; which laft circumftance Mr. H. thinks highly probable, becaufe the nerves of the rima glottidis being moft intimately connected with the diaphragm, are likely to receive oxygen, electricity, &c. from the atmofphere, and thus to excite this organ to action. This ingenious conjecture, firft intimated by ABILDGAARD, feems to obtain fome probability from the following obfervation. It is known from experiments, that if a ligature be applied to the windpipe of an animal whofe lungs are previoufly filled with oxygen gas, the animal endeavours to breathe with the fame effort as when the lungs had been filled with azotic gas; which phenomena moft likely originates from the rima glottidis remaining in contact with the atmofphere in both cafes. An additional argument for this conjecture may be taken from animals which are enclofed in irrefpirable gaffes, as they are only capable of expiring when infpiration ceafes entirely, and the animal dies before the pulfation is ftopped. It may be farther fuggefted, that drowned people are frequently reftored to life by proper treatment, without having blown air into their lungs; and likewife hanged people immediately die, when they are ftrangulated above the rima glottidis; whereas

the organs of reſpiration continue to act till the pulſe has ceaſed and till the nervous ſyſtem is diſordered, when the windpipe has been tied more downwards.

The lungs do not evolve themſelves till after the birth; before that time they will not fall together on opening the pleura, but they lie in the breaſt as a ſolid and heavy maſs, and when put into water they ſink to the bottom; and no bubble riſes on their being cut in under water. Placed under the air-pump in which the air is rarified, they do not increaſe in ſize; all which ſhows that neither air nor any liquor is contained in the veſicles of the lungs.

In this ſtate they take up but little room, the cavum thoracis being at the ſame time not ſo great proportionably as in a breathing ſubject, and the diaphragma conſiderably vaulted; neither air can enter the breaſt, nor the lungs be preſſed out, when an opening is made in the breaſt; in ſhort, the capacity of the breaſt in the fetus, ſtands in determined proportion to the abſolute ſize of the organs which are encloſed in it. But on the child coming into the world, and the liquor amnii having quited the throat, the atmoſphere excites the organs of reſpiration to action, the diaphragm begins to contract itſelf, the muſcles raiſe the ribs outwards, and the breaſt is enlarged; this motion is followed by an oppoſite one, by which the cavity of the breaſt decreaſes, and the lungs contract themſelves proportionably to the cavity of the cavum thoracis; during the firſt period a part of the atmoſphere enters into the lungs, but is expelled by the oppoſite motion. The child has hardly begun to breathe, when conſiderable changes proceed in his lungs; the alteration in the circulation of the blood has increaſed their abſolute weight, while the ſpecific weight is conſiderably diminiſhed; they take up more room, receive a different colour, and a veſicular appearance, and keep ſwimming on the ſurface of pure water, in which when they are preſſed they riſe bubbles, and they grow conſiderably larger in air rarified by the air-pump.

The quantity of air in the breaſt increaſes, when with the growth of the body the lungs become more capacious. It has however not yet been exactly determined what quantity of air might be received into the lungs; and though ſeveral experiments were made by naturaliſts for that purpoſe, no certain rule could be fixed, but the reſults are in general the following: 1. The lungs taken out from the body of an adult can be ſaid to contain about 6 cubic inches of air. 2. On opening both ſacci pleuræ the atmoſphere enters through the wounds into the breaſt, while the lungs contract themſelves towards the backbone, and emit a quantity of air through the windpipe,

pipe, which circumſtance ſeems to prove that the lungs contain a great deal more air before the opening in the breaſt was made. The whole maſs of air that is contained in the lungs of an adult after expiration, amounts moſt probably to about 110 cubic inches. 3. This quantity of air is increaſed by inſpiration, for each time of which about 40 inches are requiſite, in a quiet ſtate and in a pure air of moderate temperature; ſo that, conſequently, the lungs of a man contain about 150 cubic inches of air after a common inſpiration. 4. The greateſt quantity of air which the man is able to inſpire with a violent effort of the organs for reſpiration, may be fixed to 172 cubic inches, and the proportion betwixt the quantity after expiration, and that after inſpiration, is conſequently like 110:62.

The motion of the lungs during reſpiration, is univerſally allowed to be occaſioned by the diaphragm and the intercoſtal muſcles, which by their cotemporary action widen the breaſt, where, afterwards, the air enters into the lungs, and which may be conſidered as active organs of inſpiration. But whether inſpiration merely depends on the preſſure of the atmoſphere during the enlargement of the breaſt, or whether the lungs poſſeſs a peculiar power of imbibing air, is a matter of enquiry and diſcuſſion, upon which Mr. H. enlarges; ſhowing, that the lungs are moſt probably deprived of any active part during inſpiration, as will appear from the following remarks. It is true that frogs ſeem to extend their lungs without the help of the diaphragm, with which they are not provided, the cauſe of which phenomenon however, ariſes from the peculiar organization of its inſtruments for reſpiration, but not from a particular power of the lungs. The breathing of a frog proceeds in the following way. After having drawn in the air through the noſtrils, he cloſes them, and by raiſing the trachea, he diminiſhes the capacity of the mouth, whereby the air being compreſſed, enters through the open windpipe, where it finds the leaſt reſiſtance, into the veſicular lungs. A frog therefore inſpires by widening its mouth, and ſhutting it cloſely, which if he is prevented to do, the lungs collapſe and are not capable of being extended; thus one may kill frogs by putting a ſmall ſtick into the mouth, ſo as to prevent cloſing it. *Mr. Hook* took the ribs, the diaphragm, and the pericardium from a living animal, upon which the lungs immediately collapſed, reſpiration ceaſed, and the animal became almoſt lifeleſs. Having cut off the windpipe, and blown air into the lungs with a pair of bellows, an artificial reſpiration was produced, and the life of the animal preſerved for more than an hour. *Mr. Herholdt* himſelf made the following experiment, which evidently proves that the lungs have no active power in inſpiration. He took

a kitten

a kitten the moment it was brought into the world, and having ſtopped the noſe and mouth, he brought the head under water, and made with proper care two large wounds on each ſide of the breaſt through the pleura. On taking it out of the water, it was ſtill living, and began immediately to move the breaſt, the air paſſing and repaſſing the wounds, but not the leaſt draught of air was to be perceived before the noſe. On opening the body after death, the lungs were found to be in the ſame ſtate as in a kitten not born, and not containing the leaſt air, becauſe the widening of the breaſt could not act on the lungs, on account of the wounds that were made in them. The caſe is quite different during the act of expiration; when the breaſt is filled with air, and the muſcles for inſpiration ceaſe to act, the lungs endeavour to expel the air by means of their contractility, in combination with the weight of the pectoral muſcles and thoſe of the belly, and thus to diminiſh their ſize. This contractility they keep, even for ſome time after death.

Addition to Mr. FORBES's *Paper on the Distemper of Dogs.* Page 315.

The tranſcriber of Mr. Forbes's notes having omitted a part of the diſſection, Mr. F. will be obliged to Dr. Bradley to add, after the words "the membrane on the right ſide did not deviate from its natural ſtate;" the left lobes of the lungs were turgid, and had tubercles, while thoſe of the right ſeemed to have ſuffered no change.

MEDICAL

MEDICAL AND PHYSICAL INTELLIGENCE.

[FOREIGN AND DOMESTIC.]

TROMMSDORF'S *Method of preparing the muriated Barytes without Kali.*

The chief point in preparing the muriated barytes confifts in feparating the fulphuric acid from the fulphat of barytes, which was formerly done by the decompofition of that acid, for which purpofe the fulphat of barytes was mixed and heated for fome time with charcoal powder, and afterwards treated with acids. In this way the coal decompofed the fulphuric acid by uniting itfelf with the oxygen, and by being difengaged under the form of carbonic acid, while the fulphur remained combined with the barytes, from which it was feparated by the addition of an acid. This method, however, was afterwards quitted, on account of the fmall quantity of falt obtained in this manner, and recourfe was had to carbonat of kali, with which the fulphat of barytes was treated in the dry as well as in the humid way. But the rifing price of that fubftance induced Mr. TROMMSDORF to try whether the old method might not be revived and rendered more profitable. With this view he undertook a feries of experiments, the refults of which are the following:

1. The decompofition of the fulphat of barytes by means of charcoal powder is very imperfect in the red heat, to which circumftance it is owing that but a fmall quantity of fulphuric acid was feparated by the former proceeding.

2. For decompofing two pounds of fulphat of barytes, a white heat, lafting about two hours, is required, though even at this degree of fire, a part of the barytes remains undecompofed.

3. Much depends on the proportion of charcoal powder that is added, and though but a fmall quantity of it is required for the decompofition of that fubftance, yet the proportion in which it was formerly taken, could never produce a perfect decompofition.

4. A too great proportion of the charcoal powder is likewife difadvantageous, becaufe the charcoal being a bad conductor of heat, prevents the whole mafs from receiving that degree of temperature which is neceffary for the decompofition.

5. A very pure muriated barytes is obtained by diffolving the above mixture in pure muriatic acid, which is not the cafe if it be impregnated with fulphurous particles.

6. Pure barytes poffeffes a great affinity to the fulphur, as the moft intenfe heat is not capable of feparating them.

The proceeding itfelf is as follows: Take two pounds of pure white fulphat of barytes, heat them in a crucible till they fall into a white

a white powder, and when they become cool, make the powder ſtill finer by trituration. In caſe the ſulphat of barytes ſhould contain any iron, digeſt it with muriatic acid, by which means the trouble of purifying the muriated barytes will be afterwards ſaved. Mix the above quantity of finely pulveriſed ſulphat of barytes with three ounces of very finely pulveriſed charcoal which has been previouſly heated, and put the whole into a ſtrong crucible that is provided with a cover, the junctures of which, with the crucible, ought to be carefully ſecured with lute, which having become dry, the veſſel is placed into a furnace for fuſion. Let the fire be gentle at firſt, but increaſe it by degrees, till the veſſel becomes white hot, in which ſtate it muſt be kept for two hours. On opening the veſſel, when it becomes cool, the maſs will be found melted, or rather baked for the moſt part. It is now pulverized in a ſtone mortar, and infuſed with diſtilled water till it gets the conſiſtency of an uniform maſs. Add to this very diluted pure muriatic acid, which continue as long as any efferveſcence is to be perceived; all the time a great quantity of ſulphurated hydrogen gas will be evolved, and the mixture riſe up conſiderably. The liquor is then heated till it begins boiling, and afterwards cooled and filtrated. On evaporating it, a white and pure muriated barytes will be obtained.

Beſides, the kali, much time is alſo ſaved by this method of proceeding, which always ſucceeds in a good furnace. Mr. Trommsdorf remarks by the way, that the method of preparing the muriated barytes by means of heating a mixture of ſulphat of barytes, common ſalt, and charcoal powder, propoſed by Cit. *Lauaet*, does by no means yield that ſalt; the production thus obtained is nothing but a combination of the ſulphurated hydrogen gas, ſulphur, and free barytes.

Easier Mode of preparing the Martial Flowers, or the ammoniated Iron.

It is univerſally known, that the flores ammoniaci martiales are compoſed of ſal ammonia and the muriate of iron, in which the muriatic acid is partly combined with the iron, partly with ammonia, and that this triple ſalt is produced by the decompoſition of part of the ſal ammonia, and that the iron is but ſlightly attached to it. Several modes of preparation were built on that diſcovery, none of which however could be ſaid to be preferred as the eaſieſt and beſt, till Mr. Schiller, an apothecary of merit, came to prepare the ammoniated iron without ſublimation, which he performed by perfectly evaporating in a glaſs veſſel one ounce of ſal ammonia diſſolved in water, to which he had previouſly added a ſolution of iron in ſix drachms of diluted muriatic acid. This eaſy and advantageous mode of preparation was not ſo much attended to as it deſerved, and the neweſt and beſt pharmaceutical works ſtill recommended the former mode of preparing that remedy by ſublimation, though after different directions. But by the above method, not only much time and fire is ſaved, but the preparation becomes

becomes always more uniform than is the caſe with the ſublimation. The flores ſalis ammoniaci martiales ought therefore to be prepared by mixture and evaporation, according to the preſcription of Mr. SCHMIDT, who takes to one ounce of ſal ammoniæ diſſolved in two ounces of water, one drachm of liquefied muriate of iron, and evaporates this mixture to dryneſs, which exhibits a ſubſtance perfectly the ſame as if it had been prepared by ſublimation.

Examination of the colouring part of the blood, by Fourcroy and Vauquelin.

The colour of the blood ſeems, in a great meaſure, to be owing to the iron which was firſt diſcovered in this fluid by Menghini; but in what ſtate it exiſted there, had hitherto been left uncertain. Deyeux and Parmentier thought the iron to be combined in the blood with natron, in a ſtate analogous to the tinctura alkalina. Sage and Gren imagined that it might be united with phoſphoric acid; a conjecture, the truth of which is at preſent confirmed by the late experiments of thoſe two great chemiſts, Fourcroy and Vauquelin; the reſults of which are the following.

The red part of the blood, precipitated from the water with which the craſſamentum had been waſhed, being burned in a crucible, a reſiduum of a dark red colour remained, which contained iron, and amounted to about 0,0045 of the blood employed in the examination. For ſeparating the iron, or its natural combination, from the adherent ſalts and other heterogeneous particles, the above reſiduum is digeſted in diluted nitric acid, in which a part of it diſſolves, while another remains undiſſolved, and obtains a high red colour. Ammonia occaſions in this ſolution a precipitation of phoſphat of kali. Muriatic acid may be likewiſe employed for diſſolving the phoſphat of iron, that remains after having heated the above reſiduum. The phoſphat of iron appears in a double ſtate, according to the degree of its oxydation, in the firſt of which it is of a greyiſh colour, of a gloſſy ſurface, not ſoluble in water, but ſoluble in acids; whereas in the other ſtate it is red or brown, and leſs ſoluble in acids than in water; in the firſt ſtate the phoſphoric acid is exactly ſaturated with iron, while in the other caſe it is ſuperſaturated with the oxyd of iron. Cauſtic alkalis do not entirely decompoſe the white phoſphat of iron, but only deprive it of a part of the acid, leaving the phoſphat of iron in a ſtate of ſuperſaturation; in which it exiſts in the blood, diſſolved by the ſerum, and the blood of all animals is coloured by the phoſphat of iron ſuperſaturated with oxyd. In this ſtate it diſſolves eaſily in the white of an egg and in ſerum, when it is ſhaken with theſe fluids, by which a red ſolution will be obtained, ſimilar to blood. The preſence of natron in the blood contributes greatly to produce that ſtate of the phoſphat of iron, and at the ſame time heightens the colour of it.

It is a characteriſtic property of the red ſerum, that its colour is changed

changed by the contact with air, as it becomes light red in oxygen gas, and dark red or brown in carbonic, but particularly in hydro-carbonic gas. It likewife acts on the atmofphere by imbibing its oxygen, and forming carbonic acid.

All thefe phenomena feem undoubtedly to depend on the phofphate of iron, becaufe they manifeft themfelves particularly when it is united with the ferum.

It is obferved by *Vauquelin*, that the colouring part of the blood diffolves copper with great eafe, becaufe the refiduum of the ferum fanguinis, which had been boiled in a clean veffel of copper, in order to coagulate the albuminous particles, fhowed evident traces of its containing copper. On precipitating its folution in muriatic acid by ammonia, the liquor received a beautiful blue colour, which difappeared again on adding more muriatic acid. An iron plate put into the folution was immediately covered with copper particles. Mr. Vauquelin, however, is of opinion that this folution of copper proceeds particularly from the albuminous matter, as the liquor obtained by wafhing the craffamentum fanguinis with water, did not diffolve copper, when previoufly freed from the albuminous particles. We ought therefore to take care not to boil blood which is intended for food, in copper veffels. The liquor obtained by wafhing the craffamentum fanguinis, confifts accordingly of much water, albuminous and gelatinous fubftance, and phofphat of iron, which being diffolved in the albuminous matter is precipitated with it, as foon as it coagulates. The albuminous matter however, notwithftanding its combination with the phofphat of iron, acts on the copper, and probably alfo on other metals. The above liquor contains likewife natron and fome other falts. The co-exiftence of the phofphat of iron and of natron is not at all furprifing, when we confider that fixed alkalis do not entirely decompofe the phofphat of iron, but change it into a phofphat with fuperabundance of oxyd, in which ftate it exifts in the blood. It is likewife known that iron is oxydated in a folution of phofphat of natron, and by decompofing this falt for the moft part becomes a phofphat of iron. It is probable that this fubftance is formed in that manner in the blood, whereby at the fame time the natron is difengaged.

On the Marrow of Bones, by Isenflamm.

The fat, oily, and tranfparent fubftance contained in the bones of animals, particularly of the mammalia, is called Marrow, which appears in fome animals more, in others lefs fluid during life, but is always found folid after death. It is moft frequently of a yellowifh colour; in the long bones it has greater confiftency, but is more fluid and of a reddifh colour in the polyedrous and flat bones, and at both ends of the long bones, to which it alfo imparts a darker colour. The folid fubftance of the bones is likewife penetrated by the fineft marrow. The cavities and cells of the os frontis, os cribriforme, os fphenoideum, and maxilla fuperior, are without

without it, and appointed to different purpofes. Some fpecies of birds are provided with bones, which, inftead of marrow, are fill-ed with air, analogous to the proceffus maftoideus of the temporal bones, whofe cells communicate with the tuba Euftachii by means of the cavum tympani. The marrow is enclofed by the perioftium internum, or the marrow membrane, and it appears under the mi-crofcope like an accumulation of globules, the diameter of each of which is between 0,08 and 0,06 of an inch. It is not tinged by madder taken internally, as no fuch effect was produced in two dogs that were fed for fome time with that root, although their teeth were tinged of a deep red colour. The conftituent parti-cles of the marrow are the fame as other fats, namely, oil, water, and acid; it contains no alkali, on which account it is lefs liable to putrefaction, though it becomes rancid when expofed to the contact of air, and changes its colour. Its fpecific weight is great-er than that of water, though Plenk and Soemmering think it is lighter. It is fecerned from the blood by arteries, which pene-trate into the bones, moft probably from their ends, and not by tranfudation. In confumptive difeafes it is reforbed by the lymph-atic veffels, but foon reftored when thofe difeafes are over. It is entirely deprived of fenfibility, like all liquors fecerned from the blood. In the embryo and the infant child, it appears in form of a deep red jelly, furnifhed with a great quantity of blood-veffels; but when age is more advanced, it obtains a greater confiftency, the blood-veffels decreafe, and the colour becomes yellow. In old people it is generally dark yellow, and folid.

It feems to be more folid and yellow in the male than in the fe-male fex, the latter poffeffing likewife a lefs proportion of it. Horfes have proportionably lefs of it than men, their cylindrical bones being much narrower and more folid than in men. The globules of the marrow of horfes appear fmaller under the micro-fcope than thofe of the human body, and are alfo whiter, and of a more fluid confiftency. In oxen it appeared white and folid, fome-what like tallow; but in calves it is of a reddifh colour, and fluid like jelly. In fheep it is more fluid than in men, and appears like oil coagulated by cold. In dogs its colour was more red, and of a greater confiftency than in men. In a puppy of fome weeks old it appeared as a reddifh mucilage. In a goofe it was of a light yellow, and fluid, as in men. In a cock it appears as a deep red jelly; in the hen, however, it is yellowifh and folid. In the hog it is reddifh, and more confiftent than in men. In the whale it is very fluid.

The marrow feems not to be expofed to idiopathic difeafes, but is only changed when the bones are affected at the fame time. Mr. Troja obferved, that it became white, folid, and ready to of-fify in the upper part of a broken bone; and Mr. Boon found it fpongy and fibrous in the callus of broken bones; but in the mol-lities offium it appeared, according to the obfervations of Navier, like fluid fat.

 The

The use of the marrow for animal economy has been much discussed by physiologists, but all opinions hitherto brought forward on this subject seem to be exposed to doubts and exceptions. It has been thought by some naturalists to contribute to the formation and growth of the bones, which however is contradicted by the observation that the cartilaginous substance of which the bones consist in the embryo and infant are quite deprived of marrow, and likewise the bones of birds, &c. Hippocrates and Galen were of opinion that it might serve for the nutrition of the bones, which however is also opposed by the above observation. Others think it of great service in producing the callus and restoring the bone; but it may be suggested, that fractures of the bones are healed in a much shorter time the less the patient is advanced in years, and particularly at a period when the marrow is not yet perfectly formed. Mr. Troja and Blumenbach remarked besides, that notwithstanding they purposely destroyed the marrow, the bone was reproduced. Another opinion, adopted by the most respectable physiologists, as Bertin, Haller, Blumenbach, &c. is, that it renders the bones flexible, and communicates to them strength and elasticity. In order to prove this opinion, Bertin suggests, that the bones, deprived of their marrow by fire, became brittle and easily to be fractured; whereas, when put into oil for some time, they would recover their former flexibility. But this experiment frequently proved of a contrary effect; and besides, we remark, that the bones of children, in which the marrow is not yet perfectly formed, possess the highest degree of flexibility. Several physiologists have imagined that the marrow may serve for anointing the joints, an opinion particularly maintained by Havers; but the existence of the pores, through which it was thought to get to the joints, though described by Havers, has not been ascertained, and the above function seems to be fulfilled by the synovia. Mr. Soemmering ingeniously conjectures, that the marrow is only intended to fill the vacuum in the bones, every other substance being too heavy for that purpose. It is however most probable, that it is intended by Nature for different purposes, according to the different ages of the animal. If we are allowed to conclude from the use of the rest of fat, we imagine that its principal use in old people consists in confining heat; for we know that fat has the property of preserving heat, on which account fat people feel the cold less than lean people, and the secretion of fat proceeds much better in winter than in summer. For the same reason, the marrow is most likely in such quantity and perfection in old people, in order to preserve the heat internally, because less fat is deposited in the external parts at an old age. Lean people frequently complain of a sensation of cold in the bones, and the same may be observed in persons affected with consumptions, who, though almost consumed by a burning heat in the external parts, have a sensation of cold internally in the limbs. In children, however, who are generally fat, it consists of a kind of gelatina, which perhaps contributes to nutrition, and the bones may consequently be consider-

ed,

ed, at this period, as repositories of materia nutritiva. Whether the marrow also binds electric matter, with which the bones are thought to be provided, must be ascertained by farther observations; and it is probable that the examination of bodies of people who have been killed by lightning, may throw some light upon this subject.

We acquainted our readers in a former number of this Journal, with the properties of a new earth, discovered by Professor TROMMSDORF of Erfurt, in the Saxon beryll, and styled by him *Agust earth*. In his former analyses, he found that this fossil contained at the same time siliceous and aluminous earth, which particles, however, he was inclined to think adventitious, and perhaps originating from the matrix in which that fossil occurs. In order to ascertain this he undertook a new analysis, for which purpose he endeavoured to obtain the crystals of the fossil in as pure a state as possible, and free from any adherent particles; and though this proved very difficult, on account of their minuteness, he succeeded in separating 100 grains of very pure crystals, which were of a sky blue colour According to the experiments he made with them, no aluminous earth was to be discovered; but 100 parts of the Saxon beryll or agust it consisted of

1,0	water
1,0	siliceous earth
1,5	oxyd of iron
95,0	agust earth
1,5	loss
100	

The oxyd of iron and the siliceous earth appear only adventitious particles.

The separation of the crystals is attended with so much difficulty, that Mr. TROMMSDORF thought of an expedient for separating the pure agust earth from the whole fossil, in which the agust lay dispersed. The fossil was accordingly very finely pulverized and boiled with muriatic acid of middle strength, till a white powder only remained, consisting of siliceous earth. The liquor, when filtrated, contained oxyd of iron and of manganese, agust earth, argillaceous earth, and a little magnesia. A sufficient quantity of prussiat of kali having been added to it, it was heated to the boiling point, whereby the metallic particles and a part of argillaceous earth were separated in combination with the prussic acid. The remaining liquor was again boiled, and precipitated with caustic ammonia. The precipitation being separated by the filtre and carefully washed, was boiled with caustic kali, and dissolved in pure muriatic acid, after being previously edulcorated. It is then precipitated by carbonat of kali, and after being frequently edulcorated and dryed, it exhibits the pure agust-earth.

The

The ſame gentleman has made the following remark on the ſeparation of the argillaceous earth from the oxyd of iron by means of cauſtic lye; a moſt excellent ſubſtance for the examination of foſſils, with the uſe of which, in the analyſis of mineral bodies, we have been acquainted by the celebrated KLAPROTH of Berlin. In employing however the cauſtic lye for the ſeparation of argillaceous earth from the oxyd of iron, we ought, 1. Never to boil the argillaceous earth, which contains the iron, in glaſs or porcelain veſſels, but in ſilver ones, for fear of ſeparating the ſiliceous earth from thoſe veſſels.

2. A great quantity of cauſtic lye muſt be employed, and the whole mixture evaporated to perfect dryneſs, after which it muſt be frequently waſhed with diſtilled water. The oxyd of iron does not frequently prevent the cauſtic kali from affecting the argillaceous earth, on which account the oxyd ought again to be examined.

Mr. KRUGER of Roſtock, recommends the following method of preparing the concentrated vinegar. Take three ounces of vitriolum martis, and after having heated it, pulverize it with half an ounce of ſaccharum ſaturni. Put this mixture into a retort, but take care that nothing adheres to the ſides of it; expoſe it to a ſtrong fire. The quantity of acetic acid that will be obtained in this way, amounts to about two drachms. Though Prof. LOUIT's method is more productive, as he obtained about 64 parts of acetic acid from 96 parts of acetite of natron, whereas the above method yields only 48 parts of acetic acid from 96 parts of ſaccharum ſaturni, yet the ſubſtance which he uſed is more expenſive than the ſugar of lead and vitriolum martis, and, conſequently, leſs profitable.

Mr. KRUGER's method is alſo preferable to that which has been lately propoſed by Mr. PIEPENBRING, who obtained the acetic acid from the ſaccharum ſaturni by means of concentrated ſulphuric acid, but only 36 parts from 96 parts of the ſugar of lead. This acid of lead frequently ſmells of ſulphuric acid, and is impregnated with oxyd of lead. The acetic acid, however, ſeparated after the above method, is perfectly pure, neither impregnated with ſulphurous acid nor containing any particles of lead, iron, or copper.

The ſame gentleman propoſes a new method of preparing the nervous tincture of *Bestucheff*, immediately from the ſulphat of iron, which is the following: Diſſolve 100 grains of green purified vitriol in 1000 grains of diſtilled water, filter it, and let it evaporate till about 240 grains of the liquor remain; 120 grains of this ſolution are mixed with half an ounce of ether vitrioli, and expoſed to moderate heat, in which the ether remains white, while the ſolution of iron is of a light yellow colour, which, however, diſ-

appears

appears in the cold. The clear ether being poured off, is of a ſtrong aſtringent taſte. The remaining 120 grains of the ſolution of iron are mixed with one ounce of alkohol, and expoſed to a gentle digeſtion; whereby the alkohol obtained a light yellow colour, which diſappeared after it had been ſtanding in the cold for two days. A few days after, the alkohol, being decanted from the ſulphuric ſolution of iron, is mixed with the ſulphuric ether that had been firſt impregnated with iron. Upon accurate examination, the alkohol was found to contain about 30 grains of iron, and the ſulphuric ether about 24, and the whole mixture accordingly about 54 grains.

Profeſſor GOETTLING of Jena informs the public, that on analyſing Dr. Hahnemann's preſervative powder againſt the ſcarlet fever, he could not diſcover any traces of its containing a vegetable extract. The ſolution of it in ſpirit of wine became not at all tinged, though it was ſuffered to ſtand ſome time, which would not be the caſe, if it conſiſted of a vegetable extract. On evaporating the ſolution, the reſiduum was a cryſtalized ſalt, which by different proceedings manifeſted itſelf to be nothing but tartar.

Citizen BERTHOLLET has communicated his experiments on the muriatic acid, of which the reſults are the following: 1. Potaſh and metals are capable of transforming the nitric acid into muriatic acid. 2. The radical of the muriatic acid is to be ſearched in the water and the nitric acid, that is to ſay, in the oxygen, azot, and hydrogen. 3. It is very probable, that in the muriatic acid, the azote, as the baſis, is united with a portion of oxygen and hydrogen. *Berthollet* terminates his obſervations with remarking, that ſubſtances are more difficultly to be decompoſed the leſs the proportions of the component particles of which they are conſtituted.

The celebrated Italian chemiſt, L. BRUGNATELLI, Profeſſor of the Univerſity of Pavia, has lately diſcovered the tranſition of tartarous acid into the ſaccharic acid, which diſcovery will enable us to explain the origin of the diabetes mellitus. He has likewiſe obſerved, that gold cryſtallizes itſelf by means of electric ſparks, which cryſtals he calls *elettrati*.

FOURCROY and VAUQUELIN have analyſed the ear-wax, and found that it conſiſts of the following ſubſtances. 1. Of an oily matter, more reſembling the fat which is contained in the gall than any other animal fat. 2. Of an albuminous animal ſubſtance. 3. Of a colouring principle, which, by its bitter taſte and its cloſe combination with fat, comes near to the colouring principle of the bile.

The

The ſame chemiſts have endeavoured to employ the oxalic acid for determining the proportion of the phoſphoric acid and of lime in bones; by means of which they found, that 100 parts of the materia vitreæ of the teeth conſiſted of 43,23 parts of lime, 29,67 of phoſphoric acid, and 27,10 of gelatina and water.

WILLIAM BLAIR, A. M. F. M. S. Member of the Royal College of Surgeons in London, Surgeon of the Lock Hoſpital and Aſylum, of the Finſbury Diſpenſary, and of the Bloomſbury Diſpenſary, &c. propoſes to deliver a Courſe of CLINICAL LECTURES on the Diſeaſes and Operations of Surgery. Further particulars may be learned by applying at Mr. Blair's houſe, No. 69, Great Ruſſel Street, Bloomſbury Square, between the hours of nine and ten in the morning.

Mr. RING will publiſh, in a few days, A Treatiſe on the Cow-Pox; containing the Hiſtory of Vaccine Inoculation, and an Account of the various Publications which have appeared on that Subject, in Great Britain and other Parts of the World.

To CORRESPONDENTS.

Dr. Scott *will perceive that his reference is given by Dr.* Fletcher, *in p.* 312 *of our laſt Number.*

Mr. Syer's *Cases, and Mr.* Reece's *Communication, (with an Engraving of his Tooth-Instrument) shall appear in our next.*

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